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Agricultural College

OF UTAH.

1897-98.

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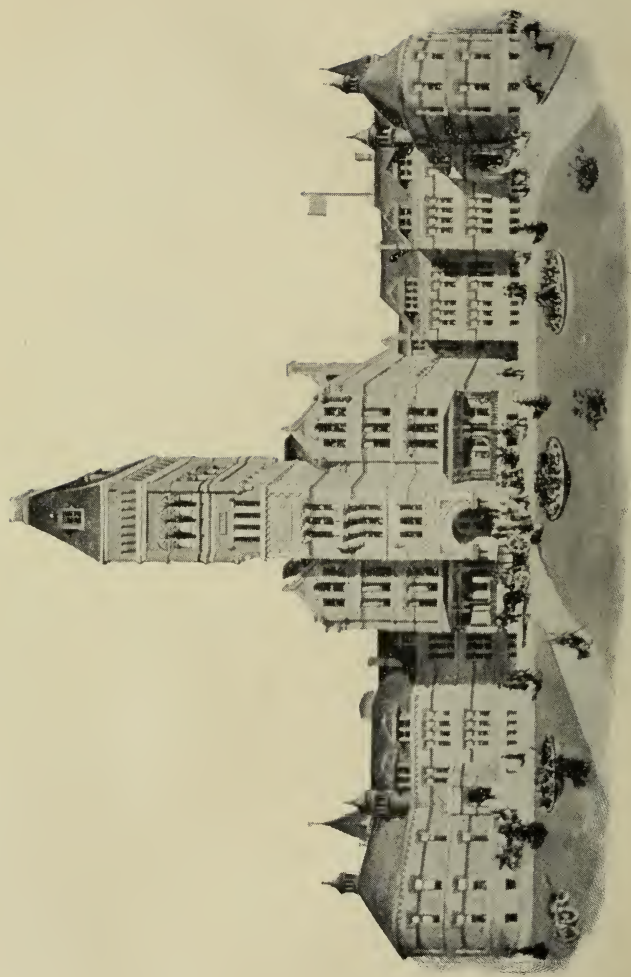
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MAIN COLLEGE BUILDING.

COMPLETE EXCEPTING THE CENTRAL FRONT.

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ANNUAL CATALOGUE

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AGRICULTURAL COLLEGE

OF UTAH

FOR THE YEAR 1897-8.



LOGAN, UTAH.

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PRESS OF SMITH, CUMMINGS & CO., LOGAN.

CALENDAR, 1897-1898.

1897

January							February							March.							April							
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September.							October.							November.							December.							
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1898

January.							February.							March.							April.						
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May.							June.							July.							August.						
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22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
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September.							October.							November.							December.							
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COLLEGE CALENDAR, 1897-8.

FIRST TERM begins Tuesday September 21, and ends Friday December 17, 1897.

SECOND TERM begins Tuesday January 4, and ends Friday April 1, 1898.

THIRD TERM begins Wednesday April 6, and ends Tuesday June 14, 1898.

Commencement Exercises occur from Sunday June 12, to Tuesday June 14.

HOLIDAYS.

Thanksgiving Day.

Christmas vacation, December 18, to January 3.

Washington's Birthday, February 22.

Arbor Day, April 14.

Decoration Day, May 30.

Summer vacation begins June 15.

BOARD OF TRUSTEES.

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HON. EMILY S. RICHARDS	Salt Lake City
HON. MARRINER W. MERRILL.....	Logan
HON. D. C. ADAMS.....	Salt Lake City
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JOSEPH E. WILSON, Secretary.....	Logan
RIPLEY S. LYON, Treasurer... ..	Logan

EXPERIMENT STATION STAFF.

JOS. M. TANNER, Pres.

LUTHER FOSTER.....	Director
F. W. BREWER	Biologist
S. FORTIER.....	Hydraulic Engineer
F. B. LINFIELD	Dairyman
JOHN A. WIDTSOE.....	Chemist
.....	Entomologist and Consulting Veterinarian
.....	Horticulturist
LEWIS A. MERRILL	Assistant Agriculturist
JAMES DRYDEN.....	Clerk and Stenographer
JOHN A. CROCKETT.....	Assistant in Dairy Department
JOHN STEWART.....	Assistant Chemist
JAMES C. THOMAS.....	Assistant Chemist
RIPLEY S. LYON.....	Treasurer
JOSEPH E. WILSON.....	Secretary

FACULTY.

Arranged in order of seniority of appointment.

JOSEPH M. TANNER, PRESIDENT.

Professor of Political Science.

JOHN T. CAINE, JR., B. S.,

Principal of Preparatory Department, and Professor
of History.

JAMES DRYDEN,

Assistant Professor of Meteorology and Stenography.

ELIAS J. MAC EWAN, M. A.,

Professor of English Language and Literature.

F. W. BREWER, M. D.,

Professor of Biology and Sanitary Science.

SAMUEL FORTIER, Ma. E.,

Mem. Can. Soc. C. E., Mem. Am. Soc. I. E.,

Professor of Civil Engineering.

F. B. LINFIELD, B. S. A.,

Professor of Dairying and Animal Husbandry.

WILLARD S. LANGTON, B. S.,

Assistant Professor of Mathematics.

JOHN A. WIDTSOE, B. S.,

Professor of Chemistry and Mineralogy.

MRS. DALINDA COTEY, B. S.,
Professor of Domestic Arts.

MISS SARAH E. BOWEN,
Instructor in Sewing, Dressmaking and Millinery.

JOSEPH JENSON,
Professor of Physics and Mechanical Engineering,
and Director of Work Shops.

LEWIS CANNON, B. S.,
Professor of Mathematics and Drawing.

MRS. SARA GODWIN GOODWIN,
Librarian and Instructor in Music.

LUTHER FOSTER, B. S., M. S. A.,
Professor of Agriculture and Director of Experiment
Station.

LEWIS A. MERRILL, B. S.,
Assistant Professor of Agriculture.

EDWARD W. ROBINSON,
Assistant Professor of German.

SAMUEL W. DUNNING,
1st Lieutenant 16th Infantry, U. S. A.,
Professor of Military Science and Tactics

JOHN W. FARIS,
Principal of the Commercial Department and Professor of
Commercial Economics and Bookkeeping.

MISS ROSANNAH CANNON,
Instructor in Elocution and Physical Culture.

JOSEPH E. WILSON,
Instructor in Penmanship.

Professor of Entomology and Veterinary Science.

Professor of Botany and Horticulture.

AUGUST J. HANSEN,
Foreman of Wood Working Department.

JULIAN P. GRIFFIN,
Foreman of Iron Working Department.

JOHN STEWART, B. S.,
Assistant in Chemical Laboratory of Experiment Station.

JAMES C. THOMAS,
Assistant in Chemical Laboratory of Experiment Station.

JOHN A. CROCKETT,
Assistant in Dairy Department.

ESTABLISHMENT OF THE COLLEGE.

An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of a recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund, "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land became available upon the admission of the Territory to statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere:

"SEC. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field."

"SEC. 10.—In the appointment of professors, instructors, and other officers and assistants of said College, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious."

It is clear that the Agricultural College was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." The legislative founders of this institution sought to place within reach of the producing classes, an education for which the older institutions had not, as a rule, made provisions.

The policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the great vocations of the people of Utah: agriculture, the mechanic arts, commerce, and home work.

"The act of 1862," says Senator Morrill, "proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with

equal scraps of labor and of instruction, or something other than a college, they would not obey the national law."

Under an act of Congress, approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment Station.

Under an act of Congress approved August 30, 1890, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The act provided that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$23,000.

The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborers' cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, two houses, apparatus, and salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, a veterinary laboratory, and the employment of teachers. The legislature of 1896 appropriated \$12,000 for the construction of workshops, and general expenses for one year. The legislature of 1897 gave \$41,000 for the erection of a laboratory, the extension of shops, the maintenance of a manual training school and for the general expenses during two and a half years.

The state auditor reports the value of the College property now in possession at the conservative figure of \$228,721.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

"SEC. 4.—The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights, immunities, franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively."

LOCATION OF THE COLLEGE.

The College is located on a broad hill overlooking the town, one mile east of Main Street, Logan, commanding a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is unsurpassed, and perhaps unequaled by that of any other college in the country. A few hundred yards to the south is the Logan River, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley, constitute a delightful and impressive panorama through the clear atmosphere. The city is noted for its freedom from vice; is quiet, orderly, clean, and generally attractive, with neat homes, fine public buildings, and electric lights and water system; the citizens are thrifty and progressive. The city has a population of about 6,000, and is the capital and commercial centre of an agricultural county with more than three times that population, known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about sixty by twelve miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch Mountains. and one of the most beautiful and healthful valleys in the western region.

EQUIPMENT OF THE COLLEGE.

THE MAIN BUILDING is one of the finest in the West, being a large handsome brick structure, about 360 feet long

and nearly 200 feet deep in the central part. It is complete as shown in the frontispiece, excepting the central front.

It contains a large auditorium, with seating capacity for 1500 people, which is used for college entertainments, and for assemblies of the students and their friends. A similar auditorium, capable of seating 400, is used daily as a chapel, and for the weekly meetings of the College literary society. The class rooms are sixty in number, all large, well lighted, well heated, and well ventilated.

The physical laboratories are in the basement, and are well equipped with apparatus.

The basement also contains the shops for wood-work and iron-work. These departments are well supplied with the usual wood and iron working machines, and with the necessary appliances for metal casting. The machine shops are equipped with engine, lathes, planers, and other machines of recent construction. A new building for shop work has been erected and an addition thereto will probably be built, completed and in use during the ensuing year.

The dairy rooms, containing the best apparatus for the manufacture of butter and cheese on scientific principles, are situated in the basement.

The laundry, kitchen and dining rooms, which are efficiently fitted with the requisite apparatus in each division, are also in the basement.

The sewing and millinery rooms are on the first floor.

The biological, botanical, entomological and chemical laboratories are situated on the second and third floors, and are very efficiently equipped with the most modern apparatus for experiment and research in the respective sciences. During the ensuing year the chemical laboratories will be removed to a building adjoining that erected for shop work.

The commercial department, which is well equipped with the appliances for banking, commercial and general business, is also situated on the second floor.

On the third floor are the gymnasium and the museum, large rooms as fully equipped as the means at the disposal of the Board of Trustees have hitherto rendered possible. The gymnasium is also used as a drill hall for young women and for social gatherings of the faculty and students. The museum has a large unused capacity, therefore donations in any of the arts and manufactures or in geological, ethnological, mineralogical, zoological and other divisions of science, from the citizens of Utah or from other friends of education will be thankfully accepted.

The library, of which full details will be found on a following page, and the music rooms, which are supplied with superior instruments, are all situated in the principal building.

The main building is heated by steam and lighted by electricity in every part. The rooms are light and pleasant and the halls spacious, extending on each floor the entire length of the building.

THE EXPERIMENT STATION building is a large brick structure, containing the laboratories of the Agriculturist, Entomologist, and Horticulturist; the office of the Director of the Station, and the library of the Professor of English. Advanced students participate in the work of the various laboratories, and a series of experimental researches is carried on in each division by the professor in charge.

A MODEL BARN AND STOCKYARD are connected with the College. The barn is a wooden building about sixty feet square and contains a silo, a root cellar, an engine room and separate quarters for horses, cattle, sheep and swine; also model storage divisions for hay, grain and farming and horticultural implements.

A DORMITORY is connected with the College and contains accommodation for about seventy-five students. Each room is about 12 x 14 feet, exclusive of a good closet and is furnished with chairs, tables, a wash-stand, a full set of chamber ware, a looking glass, and either a bedstead or two cots; there are also registers for efficient ventilation.

In addition to the rooms for the students, there are rooms for matron and for cooks and domestics, a model kitchen, a large dining hall, a pantry supplied with modern conveniences, a laundry and bath rooms. A large reception room 19x27 feet, is used for students' receptions, under the auspices of the President's wife, the ladies of the faculty and the wives of the members of the faculty.

RESIDENCES for the College President, the Director of the Experiment Station, and the Farm Superintendent are situated on the Campus. Cottages for farm laborers have also been provided.

A FORGING HOUSE AND A VETERINARY LABORATORY, both well fitted for their purposes, are situated on the College grounds.

THE FARM of about one hundred acres is well stocked with the best breeds of cattle, sheep and swine, and is fully provided with improved implements and farm machinery.

Three and a half acres of ground, close to the College building are appropriated to the use of students, for athletic sports.

THE FACULTY consists of about twenty-five members, many of them of long and successful experience in practical and industrial, as well as general education.

OBJECTS.

The College is in several ways accomplishing the objects for which it has been endowed.

I. It gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all its departments, while the students are kept in sympathy with the callings of the people.

II. It teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, biology, and mechanics are made prominent

means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lessons. At the same time lessons in agriculture, horticulture, engineering and household economy show the application of science; and all are enforced by actual experiment.

III. It trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments, is made a part of the general education for usefulness, and insures a means of living to all who make good use of it. At the same time it preserves habits of industry and manual exercise and cultivates a taste for rural and domestic pursuits.

IV. It strives to increase experimental knowledge of agriculture and horticulture. The provision for extensive and accurate research, made by establishing the Experiment Station as a distinct department of the College, offers assurance of more definite results than can be obtained by ordinary methods.

REQUIREMENTS FOR ADMISSION.

1. Graduates of the Eighth grade of the district schools are permitted to enter the sub-freshman year without examination.

2. To enter the freshman year of the long courses or the first year of the short courses the student must be at least fifteen years of age, and must pass a satisfactory examination in the following subjects, using the text books named or their equivalents:

1. Reading, spelling, and penmanship.
2. Geography—Appleton's *Higher Geography*.
3. United States History—Barnes's *United States History*.
4. Grammar—Maxwell's *Advanced Lessons*.
5. Arithmetic—Harper's *Second Book*.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above; they are also admitted upon completion of the sub-freshman studies in this College.

DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term. Irregular students are examined when they enter. The studies to be taken are assigned by the examiners and approved by the president.

The entrance fee (\$5) is then paid at the secretary's office; and the class card naming the studies to be pursued is countersigned by the president and the secretary. The card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the faculty.

When students enter for the second or third terms, the cards are secured from the secretary of the faculty, the studies assigned by the president, the cards signed by the professors and returned to the secretary, as before.

COURSES OF STUDY.

The first year is the same for all the four year courses, and there is but a slight variation in the second year.

The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

1.—Students in either course of Domestic Arts take sewing and dressmaking in the freshman year, in the place of shopwork in wood and iron, as indicated by the footnote to schedule. In the sophomore year, second term, they take

lectures on cooking, and laboratory practice in cooking in the place of trigonometry and electricity and magnetism; and in the third term, lectures on the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

2.—In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students.

The studies of the first two years are planned to meet the requirements of the most numerous class of students, the majority of whom attend for two years or less after completing the studies of the district schools. These two years, as now planned in the schedule, provide as broad culture in a general way, and as thorough preparation for the special courses which follow, as the College is at present able to offer. It cannot assume, therefore, to vary the courses further than indicated above; and students are expected to pursue the studies as here laid down or as many of them as they are able to pursue.

AGRICULTURAL COURSE.

The aim of this course is the general education and scientific training of the future agriculturists of Utah. The training is as thorough as is possible in the short time allotted. The principal exercises directly related to the successful pursuit of agriculture are taught, but no pretension is made to train specialists in any one particular branch of science. The time for this is necessarily too short.

Under *agriculture* in the junior and senior years are included a great variety of subjects, the intelligent pursuit of which requires as a foundation a certain knowledge of chemistry, physiology, biology, botany, and other sciences. The freshman and sophomore years are intended to give this preparatory training.

The Short Agricultural Course, extending over a period of two years, is offered to those students whose time or

means will not permit them to devote four years to a training for their future vocation. It is made as practical as possible in order to meet the demands of the most numerous class.

The College also offers during the winter, a special course of lectures on practical agricultural topics, intended to reach those farmers who can leave their farms for a few short winter months only, but who appreciate the advantages of a knowledge of the fundamental principles underlying their business. The lectures in this course are of a popular character and have met with much success.

The figures in the following course schedules denote the number of hours devoted to each subject during the week.

STUDIES IN AGRICULTURAL COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar.....5	Rhetoric.....5	Literature.....5
Algebra.....5	Algebra and	Geometry.....2
History.....5	Geometry.....5	Physics.....5
Drawing.....3	Physics.....5	Drawing.....3
Elocution.....2	Drawing.....5	Elocution.....2
	Elocution.....2	
Afternoon Work.		
Shopwork.....10	Shopwork.....10	Shopwork.....10

SOPHOMORE YEAR.

Chemistry.....3	Chemistry.....3	Chemistry.....3
Rhetoric.....2	Rhetoric.....2	Rhetoric.....2
Solid Geometry and	Trigonometry.....5	Botany.....5
Higher Algebra.....5	Anatomy and	Anatomy and
Civil Government and	Physiology.....5	Physiology.....5
Constitutional Law.....5		
Afternoon Work.		
Chemistry.....6	Chemistry.....6	Chemistry.....6
	Anatomy and	Anatomy and
	Physiology.....2	Physiology.....2

JUNIOR YEAR.

Physiological Botany.....3	Agricultural Chemistry.....3	Agricultural Chemistry.....3
Literature.....5	Horticulture.....5	Horticulture.....5
Psychology.....3	Logic.....3	German.....3
German.....3	German.....3	Zoology.....2
Biology.....2	Zoology.....2	Rural Engineering.....3

Afternoon Work.

Physiological Botany...4	Mineralogy6	Horticulture2
Bacteriology6	Zoology.....2	Zoology6

SENIOR YEAR.

Dairying and Animal Industry } ...5	Political Economy3	Agronomy.....3
Veterinary Science . 3	Veterinary Science . 3	Veterinary Science . 3
German.....3	German3	German3
General History5	Entomology2	or Literature5
Cheesemaking—Mondays	Geology.....3	Geology3
	Stock Feeding2	Entomology2

Afternoon Work.

Dairy Practice.....4	Veterinary Anatomy...6	Entomology4
Bookkeeping6	Stock Feeding2	Geology4

Students wishing to make Agricultural Science a specialty will be allowed to make the necessary substitutions in accordance with the recommendation of the professor in charge and with the approval of the faculty.

STUDIES IN SHORT AGRICULTURAL COURSE.

FIRST YEAR.

FIRST TERM.

Grammar.....5
Algebra.....5
History5
Drawing3
Elocution2

SECOND TERM.

Rhetoric.....5
Algebra and Geometry. 5
Physics5
Drawing3
Elocution2

THIRD TERM.

Literature.....5
Geometry5
Physics5
Botany5

Afternoon Work.

Shopwork10	Shopwork10	Shopwork10
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SECOND YEAR.

Chemistry3
Dairying and Animal Industry } ...5
Veterinary Science . 3
Physiological Botany...3
Cheesemaking, Mondays

Chemistry3
Stock Feeding.5
Veterinary Science3
Horticulture.5
Entomology2

Chemistry3
Agronomy3
Veterinary Science3
Horticulture.5
Entomology2

Afternoon Work

Dairy Practice4	Practical Agriculture...2	Practical Agriculture...4
Chemistry6	Horticulture2	Horticulture.....4
	Veterinary Science6	Entomology2

MECHANICAL ENGINEERING COURSE.

The aim of the Mechanical Engineering course is to afford the student such training as will qualify him to deal

intelligently with engineering problems in general, and prepare him for a professional career. While the distinctive purpose of the course is to give instruction in the designing and construction of machinery, considerable instruction is given in municipal, irrigation, and general engineering to form a basis for practice in these special branches.

The instruction in all branches aims to blend the theoretical with the practical, so that the student may become familiar not only with the purely scientific phase of the work, but with its application to modern practice. The student is brought, as early as possible, into contact with practical problems, the graphical as well as the analytical method being used throughout in their solution. Besides the practical tendency of the course, it has a high disciplinary value, and is especially adapted to develop originality of thought and action.

The more strictly professional work may be classified as mathematics, physics, applied mechanics, drawing, and shopwork. Sufficient work in English, history, and other general subjects is given throughout the course to meet all ordinary demands.

STUDIES IN MECHANICAL ENGINEERING COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
English Grammar5	Rhetoric.5	Literature5
Algebra 5	Algebra and Geometry }5	Geometry.....5
History5	Physics..... 5	Physics5
Elocution2	Elocution2	Elocution2
Drawing3	Drawing3	Drawing3

Afternoon Work.

Shopwork 10	Shopwork 10	Shopwork 10
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SOPHOMORE YEAR.

Chemistry3	Chemistry 3	Chemistry3
Rhetoric.2	Rhetoric.....2	Rhetoric.2
Solid Geometry and Higher Algebra.... .5	Trigonometry.....5	Analytical Geometry....5
Civil Government and Constitutional Law .5	Heat and Electricity....5	Elementary Mechanics .3
		Surveying2

Afternoon Work.

Chemistry	6	Chemistry	6	Chemistry	6
Shopwork	4	Physics	4	Field Surveying	4

JUNIOR YEAR.

Literature	5	Hydraulics	5	Materials of Engineer'g	5
Calculus	3	Calculus	5	Calculus	3
Mechanical Drawing	5	Descriptive Geometry	6	Metallurgy, Iron & Steel	2
Elements of Mechanism	5	Mechanical Drawing	4	Mechanical Drawing	5
				Hydraulics	3

Afternoon Work.

Machine Shops	10	Pattern Making	10	Machine Shops	10
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SENIOR YEAR.

Applied Mechanics	5	Applied Mechanics	5	Applied Mechanics	5
Steam Engineering	3	Steam Engineering	3	Steam Engineering	3
Municipal Engineering	5	Irrigation Engineering	5	Applied Electricity	5
Dynamics of Machines	3	Power, Measurement, and Transmission	5	English Literature	5

Afternoon Work.

Machine Design	10	Machine Design	10	Thesis	10
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CIVIL ENGINEERING COURSE.

The instruction in this course extends over a period of four years and embraces nearly all the subjects that properly belong to a civil engineer's education. Its aim is not only to afford a training of a practical as well as theoretical nature to such students as are preparing to enter the profession of civil engineering, but to prepare young men for successful careers in manufacturing, contracting, and mining pursuits.

Every high structure requires a broad base; and he who wishes to attain a high position in any branch of engineering must first lay deep and broad the foundation in language, literature, pure mathematics, and general science. As soon as the entrance examination to the freshman year can be raised, a modern language will be added to this course; but for the present some knowledge of the English language and its literature, will have to satisfy the literary requirements.

Greater prominence has been given to that branch of

engineering which relates to the storage, conveyance and use of water, since the material prosperity of the greater part of Western America is, to a great extent, dependent upon the available water supply and the use which it subserves. The design and construction of irrigation works, the need of competent managers and superintendents to operate them, and the supervision and control of the public waters, require men trained in both the theory and practice of hydraulic engineering. Already the farms of Utah, chiefly through irrigation, yield a revenue, exclusive of stock raising and the dairy, of over \$6,000,000 per annum. When so much can be done by the primitive constructed irrigation works of the pioneers, it may reasonably be expected that much greater returns can be obtained by a more scientific management of the water supply. By increased storage and diminished waste, by more accurate measuring apparatus and more economical methods of application; it may be possible ere long to double the value of the profits from irrigation farming.

Surveying extends over a period of three years; and the student who completes this course is supposed to be fairly proficient, not only in the theoretical part of the work, but in the use of instruments and in making surveys of farm lands, city lots, canals and railroads. The object is to qualify young men for the positions of county surveyor, assistant city engineer, and levelman and transitman on engineering parties.

The engineering problems connected with municipal corporations are increasing so rapidly that it was deemed wise to introduce a course in municipal engineering.

Through the exertions of civic reformers, trained specialists are securing permanent and remunerative positions in connection with city administrations; and there is reason to hope that, in the course of a few years, the street supervisors, building and sanitary inspectors, water, sewer and gas superintendents, and members of the boards of public works in American cities will be appointed solely on the basis of efficiency in their respective departments.

It has been thought that the best way to secure well qualified city officers is to begin to teach some of the principles and to familiarize students with the practice involved in such subjects as rapid transit, pure domestic water supply, sewerage and sanitation, and gas and electric lighting.

STUDIES IN CIVIL ENGINEERING COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
English Grammar 5	Rhetoric 5	Literature 5
Algebra 5	Algebra and Geometry } 5	Geometry 5
History 5	Physics 5	Physics 5
Elocution 2	Elocution 2	Elocution 2
Drawing 3	Drawing 3	Drawing 3
Afternoon Work.		
Shopwork 10	Shopwork 10	Shopwork 10

SOPHOMORE YEAR

Chemistry 3	Chemistry 3	Chemistry 3
Rhetoric 2	Rhetoric 2	Rhetoric 2
Solid Geometry and Higher Algebra } 5	Trigonometry 5	Analytical Geometry 5
Civil Governm't and Constitutional Law } 5	Heat and Electricity 5	Elementary Mechanics 3
Afternoon Work.		
Chemistry 6	Chemistry 6	Chemistry 6
Shopwork 4	Physics 4	Field Surveying 4

JUNIOR YEAR

Literature 5	Hydraulics 5	Hydraulics 3
Calculus 3	Calculus 5	Materials of Engineer'g 5
Surveying 3	Descriptive Geometry 6	Roads and Pavements 3
Mechanical Drawing 2	Mechanical Drawing 2	Calculus 3
Elements of Mechanism 5		Metallurgy 2
		Mechanical Drawing 2

Afternoon Work.

Field Practice in Engineering 6	Drawing and Designing 6	Hydrographic Surveying and Designing 6
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SENIOR YEAR.

Higher Surveying 5	Power, Measurement, and Transmission 5	Sanitation 3
Applied Mechanics 5	Applied Mechanics 5	Applied Mechanics 3
Municipal Engineering 5	Irrigation Engineering 5	Literature 5
Steam Engineering 3	Railroad Structures 3	Applied Electricity 5

Afternoon Work.

Experimental Work, Engineering Designs 6	Mineralogy and Assaying 6	Preparation of Thesis.
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AGRICULTURAL COLLEGE OF UTAH.

DOMESTIC ARTS COURSE.

The course for young women is in general the same as for young men in the four years' course in agriculture, except in the hours devoted to the shop, the farm, or to horticultural work. In place of these there are special studies adapted to women's work.

The value and necessity of special training in household economy are too well known to require explanation.

It will be seen that special attention is given to those branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to horticulture, floriculture, and economic botany should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, especially as adapted to window gardening, in the preparation of soil, and in the growth of vegetables and small fruits. Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work.

Upon completion of the freshman and the sophomore years of the regular Domestic Arts Course, the student is entitled to a certificate of graduation in the short course.

STUDIES IN DOMESTIC ARTS COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar 5	Rhetoric. 5	Literature 5
Algebra 5	Algebra and Geometry... 5	Geometry 5
History 5	Physics 5	Physics 5
Elocution 2	Elocution 2	Elocution 2
Drawing 3	Drawing 3	Drawing 3
Afternoon Work.		
Laundrying and Sewing 5	Sewing 5	Dressmaking 5
Physical Culture 3 (Elective)	Physical Culture.... 3 (Elective)	Physical Culture 3 (Elective)

SOPHOMORE YEAR.

Chemistry 3	Chemistry 3	Chemistry 3
Rhetoric 2	Rhetoric 2	Rhetoric 2
Solid Geometry and Higher Algebra 5	Cooking (Lectures) 5	Science of Nutrition 5
Civil Government and Constitutional Law ... 5	Anatomy and Physio- logy 5	Botany 5
Afternoon Work.		
Fruit Work 4	Cooking Practice 4	Cooking Practice 4
Chemistry 6	Chemistry 6	Chemistry 6

JUNIOR YEAR.

Literature 5	Logic 3	Hygiene 5
German 3	German 3	German 3
Horticulture. 5	Drawing 5	Drawing 6
Biology 2	Zoology 2	Millinery 2
Psychology 3	Designing, Cutting and Fitting 5	
Afternoon Work.		
Bacteriology 6	Zoology 2	Floriculture 6

SENIOR YEAR.

History 5	Political Economy 3	Literature 5
German 3	History 5	German 3
Household Management 5	German 3	Geology 3
Dairying 3	Fancy Work. 2	Aesthetics 2
	Entomology 2	Fancy Work 3
	Geology 3	
Afternoon Work.		
Dairying. 4	Household Accounts.... 3	Geology 4

DOMESTIC ARTS SHORT COURSE.

This includes the studies of the freshman and sophomore years as given in the regular Domestic Arts Course.

The privilege is given of substituting, subject to the approval of the faculty, a household economy study for some study in the regular sophomore year.

COMMERCIAL COURSE.

The object of this course is to broaden the intelligence of accountants, and to prepare students for positions as business men, who form a large class, having a direct and important relation to the material, social, and political life of the nation. They should have associated with their technical work a knowledge of those subjects that will give them an enlarged view of their varied relations as citizens of the state. The College, therefore, offers here a much broader general education than is common in commercial courses.

The technical feature of the course is a thorough training in penmanship, typewriting, stenography, commercial arithmetic, bookkeeping, business economics, political economy, history of commerce, and commercial law. The course is broad enough to prepare students for teaching, or for the study of the law.

For those who are unable to take the four years' course, a course of two years is offered, which will fairly well qualify them for positions as accountants and stenographers.

The department is well equipped with desks counters, and typewriters, making the presentation of the technical work as practical as is possible in a college.

STUDIES IN COMMERCIAL COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar 5	Rhetoric 5	Literature 5
Algebra 5	Algebra and Geometry 5	Geometry 5
History 5	Physics 5	Physics 5
Drawing 3	Drawing 3	Drawing 3
Elocution 2	Elocution 2	Elocution 2

Afternoon Work.

Penmanship 5	Penmanship 5	Penmanship 5
Typewriting 5	Typewriting 5	Typewriting 5

SOPHOMORE YEAR.

Chemistry 3	Chemistry 3	Chemistry 3
Rhetoric 2	Rhetoric 2	Rhetoric 2
Solid Geometry and Higher Algebra 5	Trigonometry 5	Analytical Geometry 5
Civil Government 5	Anatomy and Physiology 5	Anatomy and Physiology 5
		Surveying 2

Afternoon Work.

Chemistry 6	Chemistry 6	Chemistry 6
	Anatomy 2	Anatomy 2
		or Surveying 4

JUNIOR YEAR.

Stenography 5	Stenography 5	Stenography 5
German 3	German 3	German 3
Calculus 3	Calculus 5	Botany 5
Psychology 3	Commercial Calculations 3	Science of Bookkeeping 3
Biology 2	Zoology 2	Zoology 2

Afternoon Work.

Bacteriology 6	Mineralogy 6	Bookkeeping 10
Zoology 4	Zoology 4	

SENIOR YEAR.

Commercial Law 5	Commercial Law 5	Commercial Law 5
German 3	Geology 3	Geology 3
History of Commerce 5	German 3	German 3
Literature 5	Political Economy 3	Literature 5
	Auditing and Experting of Accounts 2	Auditing and Experting of Accounts 2

Afternoon Work.

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects, from 2 to 4 daily.

STUDIES IN SHORT COMMERCIAL COURSE.

FIRST YEAR.

FIRST TERM.

Grammar	5
Algebra	5
History	5
Drawing	3
Elocution	2

SECOND TERM.

Rhetoric	5
Algebra and Geometry {	5
Physics	5
Drawing	3
Elocution	2

THIRD TERM.

Literature	5
Geometry	5
Science of Bookkeeping	3
Drawing	3
Elocution	2

Afternoon Work.

Penmanship	5
Typewriting	5

Penmanship	5
Typewriting	5

Penmanship	5
Typewriting	5

SECOND YEAR.

Stenography	5
Rhetoric	2
Commercial Arithmetic	5
Civil Government	5

Stenography	5
Rhetoric	2
Advanced Commercial Arithmetic	5
Political Economy	3

Stenography	5
Rhetoric	2
Commercial Geography	5
Commercial Law	5

Afternoon Work.

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects.

GENERAL SCIENCE COURSE.

This course is believed to be especially adapted to the requirements of those preparing to study medicine or pharmacy, or to take technological training abroad. It will also offer excellent preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

STUDIES IN GENERAL SCIENCE COURSE.

FRESHMAN YEAR.

FIRST TERM.

Grammar	5
Algebra	5
History	5
Drawing	3
Elocution	2

SECOND TERM.

Rhetoric	5
Algebra and Geometry {	5
Physics	5
Drawing	3
Elocution	2

THIRD TERM.

Literature	5
Geometry	5
Physics	5
Drawing	3
Elocution	2

Afternoon Work.

Shopwork	10	Shopwork	10	Shopwork	10
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SOPHOMORE YEAR

Chemistry	3	Chemistry	3	Chemistry	3
Rhetoric	2	Rhetoric	2	Rhetoric	2
Solid Geometry and Higher Algebra.....	5	Trigonometry	5	Analytical Geometry...	5
Civil Government.....	5	Anatomy and Physi- ology	5	Anatomy and Physi- ology	5

Afternoon Work.

Chemistry	6	Chemistry	6	Chemistry	6
		Anatomy	2	Anatomy	2

JUNIOR YEAR

Literature.....	5	Heat and Electricity....	5	Agricultural Chemistry 3	
German.	3	German	3	German	3
Calculus	3	Calculus	5	Botany.....	5
Biology	5	Biology and Zoology ..	3	Zoology	3
				Surveying	2

Afternoon Work.

Bacteriology	6	Mineralogy	6	Zoology	6
Biology	4	Physics	4	Surveying	4

SENIOR YEAR.

Physiological Botany..	3	Political Economy.....	3	Literature	5
German	3	German	3	German	3
Horticulture.....	5	Organic Chemistry.....	5	Organic Chemistry.....	5
Psychology.....	3	Geology	3	Geology.....	3
Anthropology	2	Entomology	2	Entomology	2

Afternoon Work.

Physiological Botany...4	Veterinary Science.....4	Entomology or {	4
Analytical Chemistry...6	Analytical Chemistry...6	Botany {	4
		Geology	4

Students wishing to specialize in Biology, Chemistry, or Physics will be allowed to make any necessary substitution of special subjects in accordance with the recommendation of the professor in charge and with the approval of the faculty.

DEPARTMENTS OF INSTRUCTION.

In previous pages the order in which studies are pursued has been stated. Under the present title a somewhat detailed account will be given of the topics embraced in the several departments of instruction.

AGRICULTURE.

I. RURAL ENGINEERING. The spring term of the junior year in the long course and the corresponding term in the second year of the short course are given to the various subjects embraced by the general term, rural engineering. The work covers in a general way the following topics:

1. *History, Drainage and Irrigation*: History of Agriculture, showing the successive steps by which the art has attained its present position; farm drainage, its practical effects; land needing drainage and the different problems involved in laying out and putting in a system of drains; practical questions relating to irrigation; road making; and the selection, arrangement and management of a farm with reference to special systems to be pursued. PROF. FOSTER.

2. *Buildings, Fences and Machinery*: How to build cheap, substantial farm cottages, barns, stables and pens; location and interior arrangement of farm buildings; development, care and use of farm implements and machinery; the mechanical principles involved in their construction and different adjustments affecting draught; fences and gates, their necessity, cost, kinds and construction; wood for gates and fences, time to cut, conditions favorable to decay and how to prolong durability; discussion of Utah State fence laws. ASSISTANT PROF. MERRILL.

II. STOCK FEEDING. A portion of the senior year is devoted to a study of the principles underlying the profitable feeding of farm animals. The composition and requirements of animal bodies, the chemical composition of foods necessary to supply these wants, the general laws of animal nutrition and the chemical action and values of the different kinds of food are discussed. The German Standard rations are given thorough study, special work being done in compounding Utah foods. The student figures out the nutritive ratios, showing in what proportions the several foods may be used to make properly balanced rations for the different purposes of feeding, without the loss of more than a small percentage of any of the nutrients. A consideration of the proper foods for each class of animals, whether fed for labor, growth, milk, or meat production, is made prominent. The progress and results of the feeding experiments at the various Agricultural Experiment Stations are also carefully reviewed and discussed. PROF.* FOSTER.

III. AGRONOMY. During the spring term of the senior year the following sub-divisions of this subject are taken up:

1. *Soils*: Their origin, composition, physical and chemical properties, classification, amelioration, and relation to climate; the general management of different soils and sub-soils with their relation to successful crop production.

2. *Manures*: General principles relating to the use of manures; natural and artificial manures; the sources and composition, differences in character, and the value of liquid and solid manures of different animals for different purposes; handling and preservation of natural manures; application of manures to different soils and for various crops; reclamation of alkali soils and worn out soils; preservation of original soil fertility.

3. *Farm Crops*: Their history, uses, composition and adaptability to climate; the cultivation, harvesting and preservation of different crops; the principles of rotation; the system of rotation best suited to the State, taking into consideration the distribution of labor, the production of man-

ure, and the extermination of weeds; summer fallow; the management of meadows and pastures and the best kinds of tame grasses for the State as shown by experiments at the Station and in other parts of the State; tillage as a means of conserving soil moisture. PROF. FOSTER.

IV. ANIMAL INDUSTRY.

1. *Breeds of Live Stock*: This includes the history and description of the different breeds of stock found on the farm, their origin and development into the specialized animals of today; the effect of climate and management on the animals, and their adaptability to various localities and purposes.

2. *Breeding of Live Stock*: This deals with the law of reproduction, heredity, reversion, cross breeding, in-breeding, variation, selection, period of gestation, pedigree, etc.

3. *Management of Live Stock* includes a practical application of the principles of breeding, with a full description of the methods of caring for the different classes of live stock from birth till final disposition.

4. *Judging of Live Stock or Animal Exterior* aims to put in practice the knowledge gained in the class room; the students from exterior points tell the relative values of the animals for special purposes, and as far as possible give reasons for the decisions rendered. PROF. LINFIELD.

V. DAIRY HUSBANDRY. Dairying, as taught, deals principally with milk, its care and manufacture both in the factory and dairy. The farm problem of milk production is discussed under Animal Industry.

1. *Milk*: The elaboration, composition and fermentation of milk; the testing of milk, with a description of the methods used in paying for milk by test and in determining the worth of milk. A brief outline is also given of the fermentation of milk, or bacteriology as applied to milk and dairy products.

2. *Buttermaking*: The different methods of creaming milk and getting the best results are described; the hand-

ling and ripening of the cream, churning, salting, working, packing and marketing the butter.

3. *Cheesemaking*: Cheddar cheesemaking is described; the making of a uniform product and dealing with practical difficulties are fully illustrated; a brief description is also given of the manufacture of other kinds of cheese, particularly of such kinds as may be made in a home dairy.

4. *Factories*: Factory organization; the building equipment and management of factories are fully treated.

5. *Practical Dairying*: The college dairy is equipped with the best modern apparatus for practical dairy work, and from 1300 to 3000 pounds of milk are handled daily; factory and farm dairy methods are illustrated, and the student becomes familiar with all phases of dairy work by actual practice in the dairy; the aim being to familiarize him with the best methods of practice as discussed in the class room. PROF. LINFIELD.

VI. IRRIGATION ENGINEERING is intended to include the mechanical principles of draining and irrigating farm lands; it occupies five hours weekly for about four weeks in the second term of the senior year of the long course, or of the second year of the short course. PROF. FORTIER.

BIOLOGY.

PROFESSOR BREWER.

I. ANATOMY AND PHYSIOLOGY. Lectures and recitations are given on human and comparative anatomy, illustrated by models, anatomical preparations, diagrams and dissections.

The lecture course is supplemented, both in the winter and spring terms, by laboratory work, consisting of dissections of small animals; the study of osteology and a consideration of the elements of histology are also undertaken.

II. GENERAL BIOLOGY. The course of lectures on gen-

eral biology and the accompanying laboratory work cover the usual range of topics. The difference between living and dead matter is reviewed, and such subjects as protoplasm, cells, tissues and organs are considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life are taken for illustration and for examination in the laboratory.

III. ZOOLOGY. A comparative review is given of the various functions concerned in animal life and their adaptability to the environments of the different classes of animals. The classification of the animal kingdom, the distribution of animals according to place and time, their present location and their primeval forms are considered.

IV. PROTOPHYTOLOGY. So much of this subject as relates to the moulds, ferments, etc., which are important factors in human and animal life, is treated of in lectures and illustrated in the laboratory. Algae, diatoms, desmids and other forms are also discussed and illustrated.

V. ANTHROPOLOGY. A short course is given, in continuation of the general course, discussing the different types of the human race, existent at the present time in the various countries of the world; their relations, origin and tribal differences; their dwellings and their implements.

VI. BACTERIOLOGY. This special branch of science, which has, during the last decade, made great strides, and which is so intimately connected with diseases affecting both man and animals, occupies a full course of lectures and also receives adequate laboratory exemplification. Research work in the germ causatives of disease, especially of animals, is made in connection with the Experiment Station, and students are familiarized with the processes used in bacteriology, such as the preparation of culture media, the culture and separation of germs, staining and mounting specimens of various bacteria, making sections of tissue, and general microscopical work.

The laboratory contains a full set of apparatus for the work of investigation, similar to that used in the laboratories of Professor Koch in Berlin, and of the Pasteur Institute in Paris. Microscopes, microtomes and the general accessories of laboratory investigation are also used by the students. It is intended that the course shall be so directed as to be of practical value after the College curriculum has been completed.

VII. SANITARY SCIENCE. A course of lectures is given on the general principles of sanitary science as applied to the selection of sites for homes and the erection of the house; ventilation and heating; water supply and its uncontaminated preservation; removal of refuse and waste; food, its uses and abuses; adulterations of food and their detection, and general hygienic subjects.

BOTANY.

PROFESSOR SEARS.

The work in this department may be classed under three heads:

I. ELEMENTARY BOTANY. This is given five times a week, during the spring term of the sophomore year in all the long courses, and in the first year of the Short Agricultural Course. It is a course in structural and systematic botany. The students are required to provide themselves with an inexpensive outfit, consisting of a three-legged lens, a sharp pocket knife and two dissecting needles. At the end of the term, each student must present an herbarium of fifty analyzed and neatly mounted and labeled specimens.

II. PHYSIOLOGICAL BOTANY. This is a laboratory course in plant histology, supplemented by lectures on plant physiology. It belongs to the senior year of the Agricultural Course.

III. ECONOMIC BOTANY. This is a general review of the history and use of economic food, medicinal and timber plants, including a discussion of some of the most noxious weeds, with suggestions for their eradication.

In the last term of the senior year, two afternoons a week are devoted to the collection of a small local herbarium.

CHEMISTRY.

PROFESSOR WIDTSOE.

I. ELEMENTARY CHEMISTRY. This is a study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions, and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take the course in elementary practical chemistry.

II. ELEMENTARY PRACTICAL CHEMISTRY. This course supplements the preceding course and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other; their reactions are verified, and the facts and theories of the lecture room are tested by experiments.

III. QUALITATIVE ANALYSIS. This course runs parallel with and supplements the descriptive study of the metals and their compounds. Under the direction of the instructor in chemistry the students apply with their own hands the reagents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view. Laboratory work occupies six hours a week for thirty weeks.

IV. QUANTITATIVE ANALYSIS. In this course the student is given practice in the typical methods of proximate and ultimate quantitative chemical analysis. After the necessary introductory practice samples of waters, soils, ores, agricultural products, and foods are analyzed and reported upon. The work of the Experiment Station chemical laboratory furnishes a good opportunity for the study of methods of analysis. The course consists largely of laboratory work.

V. ORGANIC CHEMISTRY. This course is planned for students who intend to fit themselves for professional work in chemistry. It consists of a brief survey of the reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives, together with a full discussion of the nature and influence of molecular structure. In the laboratory the student makes a number of organic preparations, which in their formation involve the methods of oxidation, reduction, substitution and synthesis.

IV. AGRICULTURAL CHEMISTRY. This is a series of lectures treating of the chemical problems of agriculture; composition of plants; sources of plant food; chemistry of animal nutrition, soils and dairy products. In the laboratory are taught the methods of agricultural analysis.

NOTE: Each student taking a laboratory course in chemistry is required to deposit \$2.50 for the first term and \$1.25 for each succeeding term, to pay for chemicals, and to cover breakage.

COMMERCIAL BRANCHES.

PROFESSOR

I. PRACTICAL BOOKKEEPING. The student obtains some capital, rents a place of business, deposits his money in the bank, transacts all kinds of business, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, bills of

sale. He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, coal, lumber, furniture, drug, jobbing, commission and shipping, brokerage, real estate, and for joint stock companies and corporations. Various business relations are entered into in the formation of agencies, partnerships, joint stock companies and corporations.

II. HISTORY OF COMMERCE. This work is done by recitations and lectures. The student makes a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He notes the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; he learns how markets are created and controlled; how waterways and railways afford a ready means of transportation and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics are gathered showing the magnitude of the world's production. Practical commercial problems of the day are discussed in class.

III. COMMERCIAL LAW. This embraces a study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contracts, including agency, partnership, corporation, bills, notes and checks, purchase and sale of personal property, guarantee or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, telegraphic communication, patents, copyright, trade marks, real estate conveyances, and the business and legal forms that are used to carry on trade.

COMMERCIAL CALCULATIONS. This consists in a drill in measurements, metric system, percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all the problems that

the average business man is called upon to solve. Short methods are studied and practical devices presented.

V. BUSINESS ECONOMICS. The economic laws of trade, the general principles of Political Economy technically applied to commerce, and general business methods are carefully examined.

VI. PENMANSHIP. A plain legible style of writing, with a rapid movement, is taught daily throughout the year. It is required of commercial students; elective to others.

VII. SCIENCE OF BOOKKEEPING. This embraces the underlying principles of single and double entry bookkeeping; opening and closing books; journalizing, posting and classifying accounts. Especial attention is given to making the original or charge entry, the legal as well as the scientific feature of the entry being kept in mind.

VIII. STENOGRAPHY. This is required of second year students in the Short Commercial course, and of junior students in the four years' Commercial Course. Graham's system of Standard Phonography is taught. The class is given one hour's instruction daily throughout the year. MR. DRYDEN.

Text Book: Graham's *Handbook*.

IX. TYPEWRITING is required of all first year students in both commercial courses. Three different kinds of machines are used, the Remington, the Caligraph, and the Smith-Premier. An hour a day is given to typewriting throughout the year. MR. DRYDEN.

DOMESTIC ARTS.

I. HOUSEHOLD ECONOMY AND ÆSTHETICS.

MRS. COTEY.

EXPLANATION. The course for young women gives the same general training in English, German, Mathematics

and Science that is given in the other courses, together with special studies adapted to woman's work.

1. LAUNDRYING occupies the fall term and consists of practical work alternating with lectures. The practice includes plain white washing and removing stains, clear starching, best methods of doing up fine mull, of ironing shirts, cuffs and collars, washing flannels, and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, bluing and starch are discussed in their scientific and practical relations to laundry work.

2. FRUIT WORK includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chemical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human system; the causes of fruit fermentation, and a study of antiseptics.

3. COOKING LECTURES treat of marketing and the selection of food; general rules of measuring and mixing; best methods of baking and boiling; deep and shallow frying; the general chemistry of cooking; carving and serving of food.

4. COOKING PRACTICE includes all kinds of plain and some fancy cooking, covering in a general way all the subjects with which a housekeeper in moderate circumstances needs to be familiar. Demonstration lessons are given at various times throughout the term on subjects difficult of treatment in the general practice.

A three-course lunch is served daily during the winter term. Members of the class take turns in presiding as hostess at the table, carving and serving plates and looking after the needs of the guests; they also take turns in waiting

upon the table. The confidence and skill thus acquired are invaluable to them.

5. SCIENCE OF NUTRITION is a study of foods, their chemical composition, characteristics, digestibility; the way in which they nourish the body; the best foods to be given in certain diseases; the best food for young children; effect of age, climate and occupation on amount and kind of food required. In connection with these lectures, about forty lessons are given in preparing food for the sick.

6. HYGIENE treats of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instructions especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick.

7. HOUSEHOLD MANAGEMENT consists of lectures on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; duties of mistress and servants; entertainment of guests, and many other subjects of interest to the home-maker.

8. AESTHETICS is the science of taste and beauty. The course includes talks on fine china, pictures, furniture, decorations for the home, harmony of colors, taste in dress, and kindred subjects.

II. SEWING.

MISS BOWEN.

EXPLANATION. Besides the general advantages derived from industrial education, the object of this branch is to give a practical training in the sewing which every household requires. Neatness of work is insisted upon. The student provides material and makes her own garments.

1. PIECE SEWING. Practice is given first in the various

hand stitches used in muslin and woolen goods; overhanging, running, hemming, hemstitching, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, French hem on damask, etc.

2. DRESSMAKING. At least two muslin garments are made. A gown is cut out, basted and entirely made by the student.

3. DESIGNING, CUTTING AND FITTING. Instruction is given by talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to make drawings of the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

4. FANCY WORK. This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn-work, jeweled embroidery, and modern lace-making.

5. MILLINERY. This course comprises instruction in frame-making, facings, shirring, making bows, lining, wiring, and the like. General instruction is given in making tasteful hats and bonnets.

DRAWING.

PROFESSOR CANNON.

I. FREEHAND DRAWING. This consists in lessons and practice, perspective sketching from casts, and simple studies in light and shadow. It is required of all freshmen, the exercises coming three times a week during the year. It is made to include industrial design.

The junior students in the Domestic Arts Course have special training in designing and elementary art, suitable for young women.

II. MECHANICAL DRAWING is taught during the entire or year. Students in this class are required to make

working drawings, both detail and assembly, from measurement. Simple designs illustrating the principles taught in the class in mechanism form a prominent feature. Neatness and accuracy of execution determine largely the standard of marking.

III. DESCRIPTIVE GEOMETRY is confined to the representation of problems, and the solution of problems relating to geometrical magnitudes in space. It is made to cover orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and shadows; construction of maps; solutions of problems relating to geometrical magnitudes.

ELOCUTION AND DECLAMATION.

MISS CANNON.

It is the object of this department to make good readers, easy conversers and fluent speakers; to make the voice and the body fit instruments to serve the soul and mind. The course then will include the development of the voice and the training of the body to respond to the changes of thought and emotion.

I. READING. The work consists of a study of some of the minor English classics. Those read during the past school year were Scott's *Lady of the Lake*, Longfellow's *Miles Standish*, Pope's *Essay on Criticism*, Arnold's *Sohrab and Rustum*, and Shakespeare's *Julius Caesar*. The object of this work is to furnish profitable drill in the art of reading and incidentally to create a taste for good literature. It is required of all sub-freshmen.

II. ELOCUTION. 1. This is made to embrace voice culture, articulation and plain reading.

2. Inflection, pronunciation, gesture and expression in reading.

3. Gesture continued, practical work in recitations and impersonations.

III. DECLAMATION AND RECITATION. All freshmen meet twice a week during the year for declamations and recitations previously prepared. These exercises aim to apply the general principles of elocution. The drill gives prominence to correct pronunciation, and distinct enunciation, as well as to posture and gesture. Each student is expected to present an exercise once a fortnight or as often as the number in classes or divisions will allow.

ENGINEERING.

I. CIVIL ENGINEERING.

PROFESSOR FORTIER.

1. HYDRAULICS. This includes a discussion of the fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water-wheels and pumping engines.

TEXT BOOK: Merriman's *Hydraulics*.

2. IRRIGATION ENGINEERING includes the location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; wind-mills, artesian wells, etc.

TEXT BOOK: Wilson's *Manual of Irrigation* and works of reference.

3. ELEMENTARY SURVEYING embraces the adjustment of instruments, the location of railways, pipe lines and canals, city, mining and hydraulic surveying. Field practice in the afternoon of the first and third terms.

TEXT BOOK: Johnson's *Surveying*.

4. HIGHER SURVEYING. Measuring base lines, triangula-

tion, practical astronomy, the determination of the meridian, time, latitude, longitude.

TEXT BOOKS: Johnson's *Surveying*; Merriman's *Geodesy*.

5. MATERIALS OF ENGINEERING. This is a course of daily lectures throughout the last term to supplement the practical knowledge obtained in the carpentry, foundry, blacksmith and machine shops, by notes on stone, brick, lime, cement, iron, steel and alloys.

6. ROADS AND PAVEMENTS. Country roads are discussed along with highways, their location, construction and maintenance; the paving of city streets and sidewalks; the materials used and the mode of construction.

Text Book: Bryne's *Highway Construction*.

7. ROOFS AND BRIDGES. This is an application of the study of mechanics to roofs and bridges; dead and live loads; lateral truss systems; pin connected structures; rivets and riveting; marketable forms of iron and steel and their application in designing roofs and bridges.

Text Book: Johnson's *Theory and Practice of Modern Framed Structures*.

8. MUNICIPAL ENGINEERING embraces water-works systems; gas and electric lighting; rapid transit and sewerage. Lecture Notes.

9. APPLIED ELECTRICITY. To strengthen the civil and mechanical engineering departments it is intended soon to appoint an instructor in this subject. In the mean time the senior students will receive a course of lectures on the electric transmission of power and its efficiency as compared with compressed air; the generation of electric power by means of water; power houses and the electric street railways.

10. SUMMER REPORT. Each student, upon entering the senior year in civil engineering, is required to present a re-

port prepared by himself during the summer vacation on some structural work connected with the profession.

II. *MECHANICAL ENGINEERING.*

PROFESSOR JENSEN.

1. **ELEMENTS OF MECHANISM.** This includes a consideration of the various forms of motion and its production; link motions and their modification as used in machinery; cam and wiper outlines; wheel trains and aggregate motions; design and construction of gear teeth; mechanism of special machinery. This subject deals with the purely geometrical relations of machinery, rather than with the form and design of articulating parts.

2. **METALLURGY OF IRON AND STEEL.** This embraces a study of the principal iron ores and their reduction according to modern methods, and the processes employed in the preparation of the iron into the various forms used for general and construction purposes.

3. **STEAM ENGINEERING.** This begins with a study of the various forms of valve gears now in common use, which is followed by the study of the various forms of engines; the principles of thermodynamics according to the mechanical theory of heat and its application to the steam and other vapor engines; boilers and boiler design and construction; also methods of testing steam engines and steam boilers. A careful study is made of such data as have been secured from reliable tests in lieu of making actual tests.

4. **APPLIED MECHANICS.** A general discussion is given of the relation of forces and their effects in the production of motion; the derivation and application of formulæ, based upon the strength of materials as determined from actual experiment on full sized pieces, and used in determining the size of parts to be used in all engineering structures. Much

stress is laid upon this subject as being the chief corner stone in the foundation of an engineering profession.

5. DYNAMICS OF MACHINES. The general effects of the inertia of the moving parts of machines are discussed.

6. POWER MEASUREMENT AND TRANSMISSION. This is a study of theory of friction and suitable co-efficients for use with various materials and kinds of joints; friction brakes and dynamometers; lubricators and their uses; transference of power by means of rigid contact, rope and belt driving, compressed fluids, and electrical transmission.

7. MACHINE DESIGN. In machine design each student is required to make a certain number of designs carrying out the principles of applied mechanics and dynamics of machines in all calculations. Boilers, parts of engines, pulley and gear shafts, and hangers, form suitable examples for this work. The class work consists of lectures and drawing.

8. THESIS. In general a graduating thesis in this course should consist of the execution of an original design with a descriptive dissertation, or a discussion of some current engineering problem, or the result of some original research, experimental or theoretical.

For a description of courses in hydraulics, municipal and irrigation engineering, materials of engineering, applied electricity, see "Civil Engineering."

For a description of courses in mechanical drawing and descriptive geometry, see "Drawing."

For shopwork, see "Mechanic Arts."

For other courses, see "Physics and Mathematics."

ENGLISH LITERATURE AND GERMAN.*1. ENGLISH LANGUAGE AND LITERATURE.*

PROFESSOR MACÉWAN.

1. **ENGLISH GRAMMAR.** The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, with special attention to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors. This work occupies the fall term.

2. **ELEMENTARY RHETORIC.** This includes the principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narration. The narrative poems from the textbook in literature, with the last class, *British Masterpieces*, furnish matter for reproduction and study in versification. This work occupies the winter term.

3. **ARGUMENTATIVE RHETORIC.** Instead of more advanced general rhetoric, the rules of argument are studied; and to illustrate and enforce these, some masterpieces are critically examined. Speeches of Burke and Webster furnish suitable material. Frequent oral and written exercises make the work entirely practical; debates, written and oral, are had on questions of general interest. Each student presents three written exercises. The work goes through the sophomore year, twice a week.

4. **LITERATURE.** The first work in literature follows the elementary rhetoric, occupying the third term of the freshman year. It is a critical study of the short, complete classics—essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in

familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts have been read:

Shakespeare's *Merchant of Venice*; Bacon's *Essays*—Selections; Milton's *L'Allegro*, *Il Penseroso*, *Hymn*, and *Lycidas*; Addison's *Sir Roger De Coverly*; Pope's *Rape of the Lock*; Gray's *Elegy in a Country Churchyard*; Goldsmith's *Deserted Village*, and *Traveller*; Burns's *Cottar's Saturday Night*, and some other poems; Wordsworth's *Ode on Immortality*, and narratives from *The Excursion*; Irving's *Sketch-book*; Tennyson's *Ulysses*, *Locksley Hall*, *Enoch Arden*; Dickens's *Christmas Carols*; selections from Emerson, Lowell, Holmes, Longfellow, and Hawthorne; the selections in Swinton's *Masterpieces*, Pancoast's *Representative Literature*; Painter's *Introduction*; Syle's *From Milton to Tennyson*, *British Masterpieces*.

5. HISTORY OF LITERATURE. The second course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention, and one day each week is given to reading Shakespeare. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses, much of the study being reported in essays. This is the work of all juniors for the first term.

6. LITERATURE: MASTERPIECES. The last term of the senior year is given to the study of longer masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One week is given to each piece selected. The work of the classroom is largely a report of students, either oral or written, on what they have done by themselves.

The following course, or its equivalent—texts changing somewhat from year to year—is required of all seniors, third term.

Shakespeare, two great tragedies, *Hamlet*, *Macbeth*, *Lear*, *Othello*; Webster, *Reply to Hayne*; Burke, *Conciliation with American Colonies*; Macaulay, *Essay on Milton* and Addison; Milton and Carlyle *Essay on Johnson*; Milton, *Paradise Lost*, I. and II., *Samson Agonistes*; Carlyle, *Essay on Burns*, *Hero as Prophet*; Tennyson, *Princess*, or selected poems; Motley, *Peter the Great*, or Southey, *Nelson*; George Eliot, *Silas Marner*; Wordsworth, *Selected Poems*, Ed. by M. Arnold; Byron, *Childe Harold*.

II. GERMAN.

ASSISTANT PROFESSOR ROBINSON.

This is the only foreign language taught in the institution, and is in three courses, three hours a week, during the junior and senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the *Joynes-Meissner Grammar* and *Reading-book*, students are given such scientific reading material as will best equip them for using works of reference and the publications of scientific institutions and societies; or such selections from classic German literature as are adapted to awaken an interest and stimulate further

reading. Dippold's *Scientific German Reader*; *Wilhelm Tell*, *Nathan Der Weise*, *Egmont*, *Hermann und Dorothea*, *Reisebilder*, *Ekkehart*, *Peter Schlemihl*, *Das Kalte Herz*, *Soll und Haben*.

ENTOMOLOGY.

This work extends over two terms and consists of lectures and laboratory work. In the first term the student acquires a general knowledge of the structure and classification of the insect group. The second term is devoted to lectures on economic entomology; the most common insect pests, and remedies for their control, together with methods for applying insecticides, are considered.

GEOLOGY AND MINERALOGY.

PROFESSOR WIDTSOE.

I. MINERALOGY AND ASSAYING. A systematic study is made of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and determinative mineralogy; and in connection with the former, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

II. GEOLOGY AND LITHOLOGY. A course is given in general and economic geology in which particular attention is given to dynamical and structural geology. Along with the occurrence of rocks, their mineralogical composition is also studied. The instruction is based on a text-book but supplementary lectures are given. Weekly excursions give practice in geological field work and material for reports.

HISTORY.

PROFESSOR JOHN T. CAINE, JR.

The chief objects of this study are the fixing of the principal great historical events in the memory, the training of the reason and the historic sense, and the cultivation of the taste for historical reading. Outlines are made and memorized, and questions are suggested that require research, and stimulate independent thought. While original sources cannot well be examined, considerable reference reading is required. For this purpose, the College library is better equipped in the department of historical literature, than in any other. A general textbook used; but no slavish following of any one book is expected. Time is taken to compare conflicting statements of fact, and different interpretations. All available sources of information are used. The work extends through the first term of the freshman year, five times a week.

I. GRECIAN HISTORY. The first period of study is given to Grecian history, some attention being paid to Oriental nations, especially to those events which influenced in a noticeable manner subsequent European nations. Most of the time is occupied with a study of the conflicting cities and States of Greece, their advancement in oratory, literature and the fine arts.

II. ROMAN HISTORY. Attention is then given to the history of Rome—her rise, rapid extension, wonderful vigor, the extension of her power, her fall and final extinction, the survival of her better qualities, and the gradual development of the nations of modern Europe.

III. ENGLISH HISTORY. In succession attention is given to the history of England as the great exponent of human liberty, the rise and extension of her institutions, the settlement of her American Colonies, and the growth of her ideas and civilization on American soil.

HORTICULTURE.

EXPLANATION. This subject occupies five hours a week during the second and third terms of the junior year of the long Agricultural Course and during the same terms of the second year of the short course. Five hours a week are also devoted to this subject during the first term of the junior year in the Domestic Arts and General Science Courses.

The work will be as follows:

I. PROPAGATION AND PRUNING. The first term is occupied with plant propagation; a discussion of the principles underlying it and of special methods, as seeding, budding and the various methods of grafting. Some time is also devoted to a discussion of the general principles on which the practice of pruning is based.

During this term two hours each week are devoted to pruning, grafting, making cuttings and other work in the propagating house.

II. POMOLOGY. In the second term the subject of pomology proper is taken up, including the choice of fruit lands, their cultivation and the maintenance of their fertility; the planting of orchards and other fruit plantations; choice of trees and selection of varieties; the diseases of plants and the principles and practice of spraying.

III. GENERAL HORTICULTURE. The term in the Domestic Arts and General Science Courses is more general, including a part of what is given in each of the two terms in the Agricultural Course.

IV. FLORICULTURE. This is taught during the spring term of the junior year in the Domestic Arts Course. It deals with the propagation and care of house plants, the flower garden and the planting and care of the home grounds. So far as possible the work in the class-room is supplemented by actual practice in the green-house and on the college grounds.

MATHEMATICS.

PROFESSORS CANNON AND LANGTON.

I. ALGEBRA. A thorough drill in the elements of Algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions, is given all freshmen every day during the first term.

II.. PLANE GEOMETRY. Oral and written recitations in the elements of Plane Geometry are required of freshmen half the time during the winter and spring terms.

III. HIGHER ALGEBRA embraces a study of quadratic equations; simple indeterminate equations, inequalities, theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems, during the fall term of the sophomore year.

IV. SOLID GEOMETRY involves recitations on the relation of lines and planes in space; area of surfaces; volume of solids; and the solution of practical problems. It comes in the first term sophomore year.

V. TRIGONOMETRY embraces a study of the use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulæ. Second term sophomore year.

VI. SURVEYING occupies eleven weeks, two recitations a week, and four hours field practice a week. The solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying; and the use of the level in establishing grades, are the most important features of the work.

VII. ANALYTICAL GEOMETRY embraces the reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

VIII. CALCULUS. A general survey of the differential calculus is given together with solution of higher plane

curves, and the ordinary methods of integration, following Osborne's text.

Other courses in applied mathematics are described under Civil and Mechanical Engineering.

MECHANIC ARTS.

PROFESSOR JENSON.

I. TECHNICAL INSTRUCTION.

Instruction is given during the the regular shop hours on the various operations throughout the course, and includes the preparation of steel and iron for the mechanic arts; the felling and seasoning of timber; selection of materials, etc.

II. SHOP PRACTICE.

1. BENCH WORK IN WOOD includes exercises in planing, sawing, chiseling, rabbeting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and general use of carpenter's tools.

2. WOOD TURNING covers all the principles of straight turning, face plate and chuck work.

3. IRON FORGING embraces drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flat-ters, fullers, swages, etc. These principles are applied in the making of tools for use in the shop. Other articles are made, such as andirons and ornamental gates, if time permits.

4. STEEL FORGING embraces the forging and tempering of punches, cold chisels, drills, lathe and planer tools, springs, and the welding of steel to iron; annealing, case hardening, and coloring are also taught.

5. CABINET MAKING is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood carving added.

6. WOOD CARVING is given only to special students who have the necessary preparation.

The work numbered 1 and 2 occupies the fall term of the freshman year, that marked 3 and 4, the winter term, that marked 5 and 6, the spring term. During the junior year shop-work is continued as follows:

1. PATTERN MAKING embraces a number of exercises in the construction of simple and built up patterns and core boxes.

2. VISE WORK, in iron, embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of kep seats, riveting, brazing and soldering.

MACHINE WORK embraces straight, paper and eccentric turning, thread cutting, face plate and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail and T grooves, and kep seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.

METEOROLOGY.

ASSISTANT PROFESSOR DRYDEN.

This is an optional course for junior and senior students, and includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather Service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

MILITARY SCIENCE AND TACTICS.

LIEUTENANT DUNNING.

This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two 3-inch rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and students are required to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, the uniform prescribed by the College must be worn.

I. INFANTRY. This includes all the movements described in the drill regulations of the U. S. Army, from gymnastic instruction in the setting up exercises, the school of the soldier, and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition; instruction in signaling with flag and in military telegraphy.

II. ARTILLERY. This embraces drill in the manual of the piece, and target practice when practicable.

III. THEORETICAL INSTRUCTION. During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military science. Daily from 11:30 a. m. to 12:20 p. m. Required of all students except juniors and seniors.

MUSIC.*INSTRUMENTAL AND VOCAL.*

MRS. GOODWIN.

Provision is made for instruction on the Piano, Reed Organ and Guitar. There are four superior pianos and two cabinet organs in the College, and the music rooms will be used by pupils as heretofore. Beautiful guitars of sweet tone are made in the wood-work shops.

Details as to time of lessons and conditions will be announced at the commencement of each term.

That music is a great, perhaps the greatest, refiner of human nature is incontestable. Cruelty and brutality, generally the accompaniment of unmelodious races, become rare as the musical feeling grows, and music is a predominant characteristic of refined and gentle natures. Undoubtedly, therefore, music may be made a potent factor in civilization, because the tenderest feelings of men, cultured or uncultured, are awakened by it. This result may be obtained more easily when the heart is fully enlisted and the faculties of the mind are fully exercised, thus making music one of the noblest factors in the education of the soul. It is intended to foster the taste for music among the students as fully as is consistent with the pursuit of their studies in other directions.

The time devoted to music, including choir practice, is eleven hours a week throughout the year. The courses are optional.

PHILOSOPHY.

PSYCHOLOGY is a study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized, and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

LOGIC. The science of reasoning is considered by textbook lessons from the Jevons-Hill's Logic. The chapters on Forms, Propositions, Syllogisms, Induction, Deduction and Fallacies are studied and recited.

AESTHETICS. A series of lessons is given on the science of taste and the theories of the beautiful in art and nature. Reference to the history and development of the fine arts is frequently made, and the subject is elucidated by concrete examples and suggestive illustrations. Three times a week throughout the fall term.

PHYSICAL CULTURE.

MISS CANNON.

I. GYMNASTICS. Systematic exercises are given in free gymnastics, and in light gymnastics with Indian clubs, dumb-bells, swings and weight machines.

II. LADIES' MILITARY DRILL. Regular infantry tactics with light rifles, occupies the same time with young women, as with young men.

PHYSICS.

PROFESSOR JENSON.

I. ELEMENTARY PHYSICS. This is an introductory science course; in which the important laws of natural philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems, bearing on the subject in hand, are solved in and out of the class room.

II. HEAT AND ELECTRICITY. This course has been in-

roduced especially for engineering students. The law of conservation of energy is made the fundamental principle, and the relations and effects of the various qualities are explained upon this basis. The mechanical equivalent of these forms of energy and the processes of transformation from one form to another, and problems involving this principle, are made prominent features.

III. ELEMENTARY MECHANICS. This involves an elementary consideration of the composition and resolution of forces, the measurement of forces, dynamics, hydrostatics, and pneumatics, supplemented with numerous problems selected from probable occurrences in the construction of buildings and machinery.

IV. PHYSICAL LABORATORY work includes measurements in heat and electricity.

V. ADVANCED PHYSICS. Heat, steam engine, steam boilers, electricity, elements of mechanism, and other courses in higher and applied physics are described under Civil and Mechanical Engineering.

POLITICAL SCIENCE.

PROFESSOR TANNER.

I. CIVIL GOVERNMENT AND COMMERCIAL LAW. A study is made of the township, county, municipal, state, and national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The recent interpretations of the national constitution are also considered. Fiske's *Civil Government* and Cooley's *Constitutional Law*.

II. POLITICAL ECONOMY. Three recitations a week from MacVane's *Political Economy* are supplemented by illustrative statistics, explanations and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the consideration of the economic problems that now engage the highest thought of the country.

VETERINARY SCIENCE.

This subject embraces a series of lectures, which are delivered five times a week throughout a whole year in both courses in agriculture. No attempt is made to turn out veterinarians in any sense of the word, but simply to give the student of agriculture such an elementary knowledge of veterinary medicine as will enable him to treat some of the commoner and simpler forms of disease, to avoid dangerous exposure of the animals under his care, and to recognize the importance of strict attention to the hygiene of his farm animals.

The following is a short synopsis of the work:

I. ANATOMY OF THE HORSE. This subject is studied in the following order during the fall term—Osseous system, muscular system, digestive system, respiratory system, urinary system, vascular system, nervous system, organs of generation.

II. MATERIA MEDICA. During the winter term general pathology, therapeutics and surgery receive attention. During this term one or more horses are dissected.

III. SPECIAL PATHOLOGY and therapeutics (contagious and infectious disease) and principles of horse shoeing are discussed.

MANUAL TRAINING DEPARTMENT.

MECHANIC ARTS COURSE.

By means of a special appropriation by the Legislature of Utah, the College offers a three years' course in Mechanic Arts, beginning with the year 1897-8. The object of the course is to afford students adequate training in the use of hand and machine tools and to fit them for industrial pursuits as proficient carpenters, smiths, machinists, or founders. The work will be made thorough and systematic. In the assignment of exercises their application to practical constructions is constantly born in mind. Proficient workmen are engaged on the teaching staff and instruction is given by illustrative processes rather than by verbal explanation. Accuracy and neatness are insisted upon in the making of even the most trivial articles, thus inducing both dexterous manipulation and mental discipline.

The arrangement of the course is such that all students entering it are required to take a considerable amount of woodworking, some forging and machine work; with opportunity to specialize in any of the four branches after the first year. Considerable attention is given to hand tool work, which in all cases precedes machine tool work. Free-hand Drawing and Mechanical Drawing are taught throughout the course and are made prominent features.

Besides the strictly technical work, the course affords two recitation hours per day in the classes of English, History, Elementary Mathematics, Physics and other general studies.

At the completion of the course the student will be given a certificate according to the rules of the College.

The work in foundry, electric welding and brazing will not be given this year.

EQUIPMENT. Extensive additions to the shops will be made and will be ready for occupancy at the opening of the college year. The shops are already supplied with the following apparatus and machinery: *For Wood Working*, 24 carpenter's benches with usual sets of tools, seven wood-turning or pattern maker's lathes, one jig-saw, one wood-planer, one band-saw, one universal saw-table. *For Iron Work*, 24 power blast forges with anvils and tool accompaniments, seven vise-benches, two 17 in. engine lathes, one speed lathe, one Brainard universal milling machine, one large vertical drill press, one large planer. *General*: Emery wheels, grinding stones, special tools, etc.

STUDIES IN MECHANIC ARTS MANUAL TRAINING COURSE.

FIRST YEAR.

FIRST TERM.

Grammar.....	5
Arithmetic	5
Freehand Drawing	3
Shopwork	20
Sawing, Ripping, Planing, Mortising, Joining	

SECOND TERM.

Grammar.....	5
Arithmetic	5
Freehand Drawing	3
Shopwork	20
Care and adjustment of tools, Panneling, Sashes, etc.	

THIRD TERM.

Grammar and Composition	5
Arithmetic	5
Freehand Drawing	3
Shopwork	20
Dovetailing and Cabinet making.	

SECOND YEAR.

Geography	5
General History	5
Mechanical Drawing	3
Shopwork	20
1. General forging, Welding iron, Iron tools..	20
or	
2. Wood turning, Machine work in Wood.	20

Reading	5
Penmanship.....	2
Mechanical Drawing	3
Shopwork	20
1. Iron and Steel welding, Tempering, Tool making.....	10
2. General forging in iron, Pattern making	10

U. S. History	5
Penmanship.....	2
Reading	2
Mechanical Drawing	3
Shopwork	20
1. Screw cutting, Plumbing, Chipping, Filing and hand fitting.	
or	
2. Design and construction of a wooden frame house.	

THIRD YEAR.

Algebra5	Algebra & Geometry . . 5	Geometry5
Grammar 5	Rhetoric 5	Literature5
Elective.....5	Physics (Ag. Sh. course) 5	Elective 5
Shopwork20	Shopwork 20	Shopwork 20
1. Machine Shops20	1. Machine Shops20	1. Construction and De-
or	or	sign.
2. Inside work of house 20	2. Stair Building.....20	Each student in this
or	or	term will make some
3. Horse Shoeing,	3. Brazing, Electric weld-	elaborate article of furni-
Foundry 20	ing, Special Mould-	ture or machinery in the
	ings 20	branch in which he has
		specialized. The work
		must be original in selec-
		tion and design, subject
		to approval of depart-
		mental staff.

DOMESTIC ARTS COURSE.

1. HOUSEHOLD ECONOMY. This course of two years is offered for the benefit of those young women who do not wish to take the studies of the regular College Course but desire to devote more time to the subjects of especial interest to women. Two hours daily will be required for the cooking lessons and the same for the sewing. Each study requires one hour daily.

Such other studies as the student is qualified to pursue, may, with the consent of the faculty, be substituted for those offered in this course.

2. FRUIT WORK includes canning fruit by various methods, steaming, sealing with wax and cotton batting; various methods of making jelly from green as well as from ripe fruits; methods of covering jelly; making pickles, spices, fruits, ketchups and meat relishes; making preserves, jams and candied fruits; preparing fruit juices, cordials and syrups.

3. MEATS, SOUPS, ETC. In this the student receives instruction in selecting different cuts of meats and in the methods of cooking best adapted to them. Practice is given in roasting, braizing, broiling, in stews and pot roasts; in preparing fowls for cooking and in making dressings; in boning, larding and skewering; in making croquettes, scallops, etc.

Instruction is given in preparing soup stocks, in making cream soups, vegetable soups and purees.

Students are taught to prepare sauces suited to different kinds of meats and to make various meat pies, dumplings for stews and noodles for soups.

4. YEAST AND BREAD MAKING includes the making of various kinds of yeast, salt rising, wet and dry yeast; white and graham bread, corn bread, Boston brown bread; many varieties of rolls and buns.

This work includes instruction in making baking powder and in making a great variety of the breakfast breads in which it is used: biscuits, muffins, gems, Johnny cake, pan cakes and waffles.

5. PASTRY COOKING includes practice in a variety of layer and loaf cakes, sponges, cream puffs, cookies, jumbles and fancy cakes, plain pastry, puff paste, tarts, patties, etc.

6. DESSERTS. In this the student is given practice in a great variety of baked, boiled and steamed puddings; custards, blanc-manges, whips, creams, jellies, etc. Instruction is given in laying tables for dinner and lunch parties, and in waiting on tables.

7. SALADS, ETC. In the third term of the second year instruction is given in making French, mayonnaise and cream salad dressings; meat, vegetable and fruit salads.

Practice is given in making ice cream, ices and sherbets.

A few lessons are given in making taffy and sugar candies with French cream fondant.

Instruction is given in cooking vegetables and serving dinners during both winter terms.

II. SEWING.

The object of this course is to qualify for a trade, and to lay a foundation whereby young women may be enabled to maintain themselves.

1. **HAND STITCHES.** The work begins with hand sewing which consists of practice in the various stitches used in muslin and woolen goods; running, hemming, overhanding, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, backstitch, basting, bands, bias cutting, blanket stitch, slip stitch, herring bone, chain and cross stitch and feather stitch, French hem, French seam, etc.

2. **CARE OF MACHINES AND MACHINE SEWING.** Regular practice is given in the care of the machine, and its mechanism is illustrated.

Practice is given in running, hemming, tucking, ruffles, puffing, binding, etc.

3. **CUTTING AND FITTING.** The student learns to draft patterns from measurements of basques, skirts, sleeves, princess gowns, French coats, capes, circulars, etc.

4. **PLAIN DRESSMAKING.** Plain gowns are drafted, cut and basted, fitted, draped, trimmed and entirely finished by the student.

5. **DRESSMAKING, DESIGNING, AND FINISHING.** Instruction is given by talks on grace in design and costume, and harmony of color. Special attention is given to draping, finishing and the designing of costumes.

6. **FANCY WORK.** This consists of hemstitching, drawn work, Kensington embroidery, Roman cut work, Spanish laid work, jeweled embroidery, Bulgarian embroidery and modern lace making.

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STUDIES IN DOMESTIC ARTS MANUAL TRAINING COURSE.

FIRST YEAR.

FIRST TERM.

Fruit work	10
Hand Stitches	10
Reading	5
Grammar	5

SECOND TERM.

Cooking of Meats, Soups, and Sauces	10
Care of Machines, Ma- chine Sewing	10
U. S. History	5
Grammar	5

THIRD TERM.

Yeast & Bread Making	10
Cutting & Fitting	10
U. S. History	5
Grammar	5

SECOND YEAR.

Pastry Cooking	10
Plain Dressmaking	10
Drawing	5
Arithmetic	5

Plain & Fancy Desserts	10
Designing, Draping and Finishing	10
Drawing	5
Arithmetic	5

Salads, Ices, etc	10
Fancy Work	10
Drawing	5
Arithmetic	5

PREPARATORY DEPARTMENT.

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Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some, the schools are quite primitive. As a consequence many young men and women, who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the State, and now feel that they are entitled to a share of its intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are, do not provide instruction generally adapted to the age and wants of the class referred to.

It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies:

### SUB-FRESHMAN YEAR.

| FIRST TERM.            | SECOND TERM.              | THIRD TERM.                         |
|------------------------|---------------------------|-------------------------------------|
| Grammar . . . . . 5    | Grammar . . . . . 5       | Grammar and Composition . . . . . 5 |
| Arithmetic . . . . . 5 | Arithmetic . . . . . 5    | Arithmetic and Algebra 5            |
| Geography . . . . . 5  | U. S. History . . . . . 5 | U. S. History . . . . . 5           |
| Reading . . . . . 2    | Reading . . . . . 2       | Reading and Declamation . . . . . 3 |
| <b>Afternoon Work.</b> |                           |                                     |
| Penmanship. . . . . 5  | Penmanship . . . . . 5    | Penmanship . . . . . 5              |
| Drawing . . . . . 5    | Drawing . . . . . 5       | Drawing . . . . . 5                 |

## WINTER COURSES.

I. FARMERS' COURSE. Beginning in January, a course of special lectures on agricultural subjects is given for the benefit of any farmer that may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and occupies one term, till the end of March.

A special circular describing this course will be mailed upon application.

II. WOMEN'S COURSE. A special course in sewing, household management, cooking, and such literary or scientific studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term.

Special circulars describing this course will be issued.

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## EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one-third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject upon examination. In all four year courses, an average standing of not less than 75 per cent., with no grade less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month, may be dropped from the class.

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## ADMISSION TO ADVANCED STANDING.

Students of this College, or of any similar institution, who are desirous of being admitted to advanced standing must present themselves for examination in the required subjects on the Monday and Tuesday of the week in which the College opens in the fall term.



## GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four year courses. A certificate is granted for the completion of any short course.

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## COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the college course; for a single term \$2.50. The privileges of the library, museum, etc., are free to students. In the chemical laboratory, work shops and cooking rooms, students are charged for the cost of the materials actually used by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificate of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

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## LIBRARY.

MRS. GOODWIN, Librarian.

The general library contains about five thousand volumes and several thousand pamphlets. The subjects covered are general literature, including poetry and fiction, travel, history, biography and criticism; political economy, sociology, metaphysics, general science, and such of the special sciences as are included in the courses of the several departments. The Professor of English Literature, whose private library contains about two thousand eight hundred volumes, allows to advanced students in his own classes, the privilege of the use of his library under his direction. Some of the other professors also accord access to their private libraries as occasion may require. A large addition of books will be made to the general library during the coming year.

The library and reading room are open to the students

and to the general public every college day throughout the year.

The list of periodicals placed in the reading room upon subscription is as follows:

### *LITERARY MAGAZINES.*

|                       |                        |
|-----------------------|------------------------|
| Atlantic Monthly.     | Literary Digest.       |
| Book News.            | Literary World.        |
| Century.              | McClure's Magazine.    |
| Cosmopolitan.         | Munsey's Magazine.     |
| Critic.               | Nation.                |
| Dial.                 | North American Review. |
| Edinburgh Review.     | Outlook.               |
| Education.            | Peterson's Magazine.   |
| Educational Review,   | Review of Reviews.     |
| Forum.                | Scribner's Magazine.   |
| Harper's Bazar.       | Student's Journal.     |
| Harper's Monthly.     | University Chronicle.  |
| Harper's Weekly.      | University Magazine.   |
| Journal of Education. | Youth's Companion.     |
| Ladies' Home Journal. |                        |

### *SCIENTIFIC AND TECHNICAL MAGAZINES.*

|                                                     |                                                                     |
|-----------------------------------------------------|---------------------------------------------------------------------|
| American Machinist.                                 | Le Bon Temps.                                                       |
| American Magazine of Civics.                        | Machinery.                                                          |
| American Journal of Politics.                       | Music.                                                              |
| American Naturalist.                                | Nature.                                                             |
| Art Education.                                      | Political Science Quarterly.                                        |
| Art Journal.                                        | Popular Science Monthly.                                            |
| Delineator.                                         | Sanitarian.                                                         |
| Electrician.                                        | School Review.                                                      |
| Engineering Magazine.                               | Science.                                                            |
| Etude.                                              | Scientific American.                                                |
| Good Housekeeping.                                  | Scientific American—Build-<br>ing Edition.                          |
| Home Art.                                           | Scientific American Supple-<br>ment.                                |
| Housekeeper.                                        | Studies in Historical and<br>Political Science.                     |
| Johns-Hopkins' University<br>Studies.               | Table Talk.                                                         |
| Jenness Miller's Magazine.                          | Transactions of American<br>Society of Mechanical En-<br>gineering. |
| Journal of American Folk<br>Lore.                   | Werner's Voice Magazine.                                            |
| Journal of Association of<br>Engineering Societies. |                                                                     |
| Journal of Veterinary Ar-<br>chives.                |                                                                     |

*AGRICULTURAL MAGAZINES.*

|                       |                          |
|-----------------------|--------------------------|
| Agricultural Science. | Farm Poultry.            |
| American Bee Journal. | Garden and Forest.       |
| American Gardening.   | Journal of Horticulture. |
| Breeder's Gazette.    | Pacific Rural Press.     |
| Country Gentleman.    | Poultry World.           |

*NEWSPAPERS AND MISCELLANEOUS PERIODICALS.*

The following is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to college students and to the general public. The list comprises nearly all the best agricultural papers of the country, and in connection with the college list of periodicals, constitutes an excellent current library of agriculture and related sciences.

|                            |                                    |
|----------------------------|------------------------------------|
| Agricultural Epitomist.    | Commercial Agriculture.            |
| Agriculturist.             | Connecticut Farmer.                |
| American Agriculturist,    | Creamery Journal.                  |
| Middle and Western         | Cultivator.                        |
| editions.                  | Daily Public Ledger, Philadelphia. |
| American Creamery.         | Dairy The, London, England.        |
| American Cultivator.       | Dairy World.                       |
| American Fertilizer.       | Dakota Farmer.                     |
| American Gardening.        | Elgin Dairy Report.                |
| American Grange Bulletin.  | Farmers' Advocate.                 |
| American Horticulturist.   | Farm, Field, and Fireside.         |
| American Poultry Journal.  | Farm and Fireside.                 |
| American Sheep Breeder and | Farmers' Guide.                    |
| Wool Grower.               | Farm and Home.                     |
| American Swineherd.        | Farmer's Home.                     |
| Baltimore Weekly Sun.      | Farmer's Journal.                  |
| California Cultivator and  | Farmer's Call.                     |
| Poultry Keeper.            | Farmer's Magazine.                 |
| California Fruit Grower.   | Farming, Toronto, Ont.,            |
| Chronique Agricole, Lau-   | Canada.                            |
| sanne, Switzerland.        | Farm News.                         |
| Clover Leaf.               |                                    |
| Colman's Rural World.      |                                    |

|                                                              |                                               |
|--------------------------------------------------------------|-----------------------------------------------|
| Farm and Orchard.                                            | Ohio Farmer.                                  |
| Farmers' Review.                                             | Orange Judd Farmer.                           |
| Farm, Stock, and Home.                                       | Pacific Coast Dairyman.                       |
| Field and Farm.                                              | Pacific Rural Press.                          |
| Gardening.                                                   | Practical Farmer.                             |
| Grange Visitor.                                              | Prairie Farmer.                               |
| Hoard's Dairyman.                                            | Reliable Poultry Journal.                     |
| Holstein Friesian Register.                                  | Revue Internationale des                      |
| Hospodar.                                                    | Falsifications, Amster-                       |
| Indiana Farmer.                                              | dam, Holland.                                 |
| Industrial American.                                         | Rural Canadian, Toronto,                      |
| Industrialist.                                               | Ont., Canada.                                 |
| Irrigation Age.                                              | Rural Life.                                   |
| Journal of Board of Agriculture, London, England.            | Rural Northwest.                              |
| Journal of Agriculture.                                      | Scottish Farmer, Glasgow,                     |
| Jersey Bulletin.                                             | Scotland.                                     |
| Kansas Farmer.                                               | Southern Cultivator.                          |
| Live Stock Indicator.                                        | Stockman and Farmer.                          |
| Live Stock Report.                                           | Successful Farmer.                            |
| L'Industrie Laitiere, Paris, France.                         | Sugar Beet.                                   |
| Louisiana Planter.                                           | Texas Farm and Ranch.                         |
| Milch Zeitung, Bremen, Germany.                              | Ulster Agriculturist, Belfast, Ireland.       |
| Mirror and Farmer.                                           | Wallace's Farmer.                             |
| Montana Fruit Grower.                                        | Weekly Call, San Francisco.                   |
| Nebraska Farmer.                                             | Weekly Tribune, New York.                     |
| Neue Zeitschrift fur Rubenzucker-Industrie, Berlin, Germany. | Western Agriculturist and Live Stock Journal. |
| New England Farmer.                                          | Western Rural.                                |
| New England Florist.                                         | Wisconsin Agriculturist.                      |
|                                                              | Wool, Mutton, and Pork.                       |
|                                                              | World, thrice a week.                         |

The following Utah newspapers are also sent by the courtesy of the publishers.

|                             |                               |
|-----------------------------|-------------------------------|
| Advocate, Price.            | Bulletin, Bingham.            |
| Advocate, Richfield.        | Clipper, Farmington.          |
| American, Spanish Fork.     | Democrat, Eureka.             |
| Argus, Salt Lake City.      | Deseret News, Salt Lake City. |
| Banner, Lehi.               | Enterprise, Ephraim.          |
| Beobachter, Salt Lake City. | Enquirer, Provo.              |
| Blade, Deseret.             | Express, Vernal.              |
| Box Elder News, Brigham.    | Globe, Payson.                |
| Bugler, Brigham.            | Herald, Salt Lake City.       |

|                           |                             |
|---------------------------|-----------------------------|
| Independent, Sandy.       | Record, Park City.          |
| Independent, Springville. | Republic, Nephi.            |
| Inter Mountain Advocate,  | Review, Ogden.              |
| Salt Lake City.           | Round-up, Randolph.         |
| Item, American Fork.      | Sentinel, Manti.            |
| Journal, Logan.           | Southern Censor, Richfield. |
| Mercury, Mercur.          | Standard, Ogden.            |
| Messenger, Manti.         | Times, Coalville.           |
| Miner, Tintic.            | Transcript, Tooele.         |
| Nation, Logan.            | Tribune, Salt Lake City.    |
| News, Beaver.             | Utah Patriot, Park City.    |
| Press, Ogden.             | Utonian, Provo.             |
| Progress, Fillmore.       | Wasatch Wave, Heber.        |
| Pyramid, Mount Pleasant.  | Woman's Exponent.           |
| Record, Cedar City.       |                             |

## MUSEUM.

DR. BREWER, Curator.

The Museum contains a considerable number of specimens illustrative of Geology and Palæontology, Vertebrate and Invertebrate Zoology, Mineralogy; also about four thousand five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grain representing the produce of Utah and other States. A small collection of Indian and Polynesian products and curiosities has been made.

*Donations to the Museum will be highly appreciated.*

The undermentioned contributions have been made to the Museum and are hereby thankfully acknowledged:

Mr. J. W. Dunn, Frisco, Utah.—Cerargyrite and Gypsum from Horn Silver Mine, Frisco, Utah.

Prof. E. S. Richman, Fullerton, California.—Petrified wood, Obsidian, Castle Geyser formations, Fountain Geyser formations, Hot Springs formations; all from Yellow Stone Park.

Mr. T. C. Craigan, Logan.—Petrified wood.



- Mr. Lewis Carver, Plain City.—Asbestos and petrified wood.
- Mr. F. M. Saker, Rockport, Utah.—Mineralogical specimens.
- Mr. T. R. Welsh, Croydon, Utah.—Ammonites from Somersetshire, England.
- Mr. A. G. Watson.—Crystallized lead from Keynote Mine, Bingham Canyon.
- Mr. Charles Blyth, Salt Lake City.—Ute Indian spear heads and peace pipe from Uintah Reservation.
- Mr. A. L. Green, Menan, Idaho.—Collection of shells, coral, seaweeds, curios, cloth and mats woven by the natives. All from the Samoan Islands.
- Mr. S. P. Morgan, Logan.—Specimen plant of peanuts grown in southern Idaho, near Franklin.
- Mr. Theodore Martineau, Colonia, Juarez, Mexico.—Collection of ancient pottery from Mexico.
- Prof. J. T. Miller, Nephi, Utah.—Collection of coins of various nations.
- Mr. Alma Green, Menan, Idaho.—Shells, coral, moss, and photographs from Samoan Islands.
- Mr. J. R. Thompson, Richmond.—Lime incrustations, Soda Springs, Idaho.
- Mr. Samuel Littledale, Smithfield. Curio.
- Mr. Henry Bassett, Salt Lake City.—Indian arrow head.

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## BOARDING HOUSE.

The Boarding House will be under the discipline of the College, and students will be directly responsible to the President for their conduct. Two students usually occupy one room, the cost to each for room, electric light and board being from \$2.25 to \$2.75 a week. Students are required to furnish bedding and carpet. *No student using tobacco will be received*

## WEATHER FORECASTS.

The College receives the telegraphic weather forecasts from the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are displayed from the flagpole of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the per centage of verification of the forecasts for the Pacific Coast division was 83.7. For Utah, which is part of this division, the per centage was likewise 83.7. Great value is placed upon these forecasts by the Department of Agriculture at Washington. From their timely warnings much property is saved both on sea and land. The Department considers that \$10,000,000 is a conservative estimate of the value of property saved in 1895. Doubtless some means will be devised in the near future whereby these forecasts will be made more accessible to the farming community. An explanation of the flag signals is shown on the third page of the cover.

## STUDENTS.



### GRADUATES OF 1897.

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#### *WITH THE DEGREE OF BACHELOR OF SCIENCE:*

|                              |                    |
|------------------------------|--------------------|
| Bankhead, John.....          | Wellsville         |
| Barker, Olla .....           | Ogden              |
| Foster, Clara Louisa .....   | Logan              |
| Hart, Alfred Augustus .....  | Bloomington, Idaho |
| Hart, Hermoine Sabina .....  | Bloomington, Idaho |
| Humpherys, Thomas Hyrum..... | Paris, Idaho       |
| Jensen, Charles A .....      | Hyrum              |
| Lundberg, Victoria .....     | Logan              |
| Maughan, Rachel N .....      | Petersboro         |
| Pond, Charles .....          | Lewiston           |
| Smith, Mamie.....            | Preston, Idaho     |
| Sponberg, Anna.....          | Franklin, Idaho    |
| Stewart, John .....          | Plain City         |
| Widtsoe, Osborne .....       | Logan              |

#### *WITH CERTIFICATE FOR THE COMPLE- TION OF THE SHORT COURSES.*

|                            |               |
|----------------------------|---------------|
| Larsen, Joseph J.....      | Newton        |
| Nelson, Frank Orlando..... | Richmond      |
| Redford, Abraham B.....    | Beaver, Idaho |

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#### *POST GRADUATES.*

|                            |          |
|----------------------------|----------|
| Larsen, Christian .....    | Logan    |
| Merrill, Amos Newlove..... | Richmond |
| Merrill, Lorin Asa.....    | Richmond |

*SENIORS.*

|                         |                    |
|-------------------------|--------------------|
| Bankhead, John          | Wellsville         |
| Barker, Olla            | Ogden              |
| Foster, Clara Louisa    | Logan              |
| Hart, Alfred Augustus   | Bloomington, Idaho |
| Hart, Hermoine Sabina   | Bloomington, Idaho |
| Humpherys, Thomas Hyrum | Paris, Idaho       |
| Jensen, Charles A       | Hyrum              |
| Lundberg, Victoria      | Logan              |
| Maughan, Rachel N       | Petersboro         |
| Pond, Charles           | Lewiston           |
| Smith, Mamie            | Preston, Idaho     |
| Sponberg, Anna          | Franklin, Idaho    |
| Stewart, John           | Plain City         |
| Widtsoe, Osborne        | Logan              |

*JUNIORS.*

|                        |               |
|------------------------|---------------|
| Atkinson, Fred         | Dayton, Idaho |
| Baker, John Simon      | Mendon        |
| Beers, Annie           | Logan         |
| Beers, William Duke    | Logan         |
| Bullen, Mable          | Richmond      |
| Bybee, Jane            | Lewiston      |
| Hansen, Niels M. Jr    | Logan         |
| Irvine, Alexander Ray  | Logan         |
| Peterson, Joseph Hagan | Huntsville    |

*SOPHOMORES.*

|                          |                    |
|--------------------------|--------------------|
| Benedict, Beatrice       | Logan              |
| Bullen, Ethel            | Richmond           |
| Drysdale, Eliza          | Logan              |
| Evans, Frederick Charles | Thomas Fork, Idaho |
| Gordon, Robert J         | Meadowville        |
| Hansen, August J         | Logan              |
| Hart, James Richard      | Thomas Fork, Idaho |
| Hogensen, Christian      | Newton             |
| Homer, Rose              | Oxford, Idaho      |

|                            |                        |
|----------------------------|------------------------|
| Homer, William Harrison Jr | Oxford, Idaho          |
| Humpherys, Charles Rich    | Paris, Idaho           |
| Huntsman, Sara             | Wellsville             |
| Jensen, Joseph William     | Newton                 |
| Larsen, Joseph J           | Newton                 |
| Martineau, Theodore        | Colonia Juarez, Mexico |
| Merrill, Fred Whittemore   | Richmond               |
| Morrell, Joseph Rowland    | Logan                  |
| Nelson, Frank Orlando      | Richmond               |
| Nelson, Olaf A.            | Logan                  |
| Nelson, William            | Newton                 |
| Redford, Abraham B         | Beaver, Idaho          |
| Simmonds, William Walter   | Trenton                |
| Smith, Absalom Carlos      | Lewiston               |
| Smith, Parley Franklin     | Lewiston               |
| Stone, Ellen Annie         | Logan                  |
| Stover, Arthur Patterson   | Logan                  |
| Taylor, George Francis     | Plain City             |
| Thatcher, Ollie            | Logan                  |
| Thomas, James Clayborne    | Logan                  |
| Williamson, Orson          | St. Charles, Idaho     |
| Woozley, Pearl             | Malad, Idaho           |

### *FRESHMEN.*

|                        |                    |
|------------------------|--------------------|
| Adamson, Lydia Ann     | Richmond           |
| Anderson, Nils Peder   | Logan              |
| Aris, Fred J           | Alpena, Michigan   |
| Bithell, Joseph James  | Salt Lake City     |
| Bowen, Olive Retta     | Logan              |
| Brown, James Furgeson  | Liberty, Idaho     |
| Brown, Julia           | Liberty, Idaho     |
| Budge, Frank           | Paris, Idaho       |
| Chambers, Thomas Henry | Smithfield         |
| Christianson, John F   | Ephraim            |
| Cooper, Blanche        | McCammon, Idaho    |
| Curtis, Harry Benson   | Blackfoot, Idaho   |
| Davis, Arthur James    | Salmon City, Idaho |



|                           |                     |
|---------------------------|---------------------|
| Egbert, Margaret Stella   | Grace, Idaho        |
| Eliason, William          | Moroni              |
| Evans, John William       | Layton              |
| Fisher, Stella Josephine  | Oxford, Idaho       |
| Fleming, Burton Percival  | Lógan               |
| Gleason, Alvirnus Horace  | Garland             |
| Hansen, Christian James   | Collinston          |
| Hansen, Nephi             | Newton              |
| Hayball, George           | Logan               |
| Hendricks, John William   | Richmond            |
| Hendricks, William Warren | Richmond            |
| Horsley, Harry            | Soda Springs, Idaho |
| Jenson, Eliza             | St. Charles, Idaho  |
| Jeppson, Heber            | Brigham City        |
| Jones, Thomas Daniel      | Malad, Idaho        |
| Larsen, Nellie Marie      | Logan               |
| Larson, David             | Collinston          |
| Larson, John William      | Collinston          |
| Mathis, John Arnold       | New Harmony         |
| Mattson, Amanda C         | Logan               |
| Miner, Idalah             | Logan               |
| Merrill, May Jane         | Bennington, Idaho   |
| Morgan, Lester            | Logan               |
| Morgan, Simon Perry       | Franklin, Idaho     |
| McAlister, Maima Jean     | Logan               |
| McAlister, Will Lucius    | Logan               |
| Nelson, Charles Walter    | Richmond            |
| Nelson, Ethel Elfreida    | Manti               |
| Neilson, Neils Peter      | Logan               |
| Olson, Charles P          | Logan               |
| Olson, Henry Christian    | Logan               |
| Ormsby, Mable Jane        | Logan               |
| Packer, Edson Whipple     | Riverside, Idaho    |
| Palmer, Centennial Edward | Plain City          |
| Parkinson, Elizabeth      | Logan               |
| Peterson, Andrew          | Manti               |
| Peterson, Antone          | Salt Lake City      |
| Peterson, Ida Elizabeth   | Logan               |

|                         |                   |
|-------------------------|-------------------|
| Petty, William Henry    | Richmond          |
| Porter, Charles Walter  | Portersville      |
| Ralph, Fred Charles     | Hyrum             |
| Slater, James Ray       | Slaterville       |
| Smith, Ephraim          | Sandy             |
| Sorensen, Theone        | Huntsville        |
| Titus, Nelson Carlisle  | Blackfoot, Idaho  |
| Thatcher, Roy Davis     | Logan             |
| Thomas, John Owens      | Malad, Idaho      |
| Ward, Adelaide          | Willard           |
| Webster, Charles Arthur | Montpelier, Idaho |
| Wright, Edgar Monroe    | Bennington, Idaho |
| Young, Wilford Van Cott | Salt Lake City    |

### *SUB-FRESHMEN.*

|                         |                    |
|-------------------------|--------------------|
| Adams, Joshua Isaac     | Layton             |
| Adams, Rufus William    | Layton             |
| Aland, John Albert      | Bloomington, Idaho |
| Allen, Elijah William   | Coveville          |
| Anderson, Byron Morley  | Manti              |
| Anderson, Gilbert       | Hyrum              |
| Anderson, John Amos     | Fremont Co., Idaho |
| Austin, Arta Chase      | Liberty, Idaho     |
| Austin, Joseph Albert   | Payson             |
| Bagley, Pernecy May     | Montpelier, Idaho  |
| Baird, Warren           | Lewiston           |
| Baker, Annie            | Mendon             |
| Baker, Lyman            | Mendon             |
| Baker, Maggie           | Mendon             |
| Barson, Denney Burdell  | Clarkston          |
| Barson, Hyrum Sheffield | Clarkston          |
| Barson, Mary Eliza      | Clarkston          |
| Bassett, Don Henry      | Lago, Idaho        |
| Bassett, Hattie         | Lago, Idaho        |
| Bassett, Lutie M        | Lago, Idaho        |
| Bell, Adelbert          | Logan              |
| Berntson, Richard       | Logan              |
| Bigler, Sarah           | Collinston         |

|                               |                     |
|-------------------------------|---------------------|
| Bingham, Charles Alexander    | Trenton             |
| Boley, Warren Chipman         | American Fork       |
| Bone, John Edwin              | Lehi                |
| Broberg, John Carl            | Logan               |
| Brodin, Laura Camille         | Logan               |
| Brooks, Harry R               | Salt Lake City      |
| Brown, Charles Franklin       | Lowell              |
| Budge, Charles Stratford      | Paris, Idaho        |
| Bullock, John Taylor          | Cedar City          |
| Bullock, Rebecca              | Providence          |
| Bullock, Winnie               | Providence          |
| Bunot, Henry                  | Henefer             |
| Bunot, Myra                   | Henefer             |
| Bush, Daniel Donovan          | St. John            |
| Bush, Don Paul                | St. John            |
| Bush, John Wesley             | St. John            |
| Bush, Marie                   | Clover              |
| Bush, Richard                 | Clover              |
| Buxton, George Chester        | Logan               |
| Bybee, Harriet Emmeline       | Lewiston            |
| Byrne, Louis                  | Lyman, Idaho        |
| Caine, John Thomas, Jr.       | Logan               |
| Campbell, Ezra                | Providence          |
| Candland, Lawrence            | Uintah              |
| Card, David                   | Logan               |
| Carlston, James Albert        | Fairview            |
| Chadwick, Charles             | Park Valley         |
| Challis, Arthur               | Franklin, Idaho     |
| Cheney, Clarence Elijah       | Laketown            |
| Chester, Hattie               | Soda Springs, Idaho |
| Christensen, Amelia Mary Ann  | Soda Springs, Idaho |
| Christensen, Arthur Eugene    | Newton              |
| Christensen, Elizabeth        | Newton              |
| Christensen, James William    | Newton              |
| Christensen, Nephi            | Newton              |
| Christensen, Soren Christian  | Levan               |
| Christianson, Jeremiah Josiah | Hyrum               |
| Christianson, Mary Ida        | Laketown            |

|                            |                     |
|----------------------------|---------------------|
| Cohn, Emma                 | Oneida, Idaho       |
| Cole, Robert Edwin         | Fairview, Idaho     |
| Cowley, David              | Logan               |
| Crane, Birt                | Soda Springs, Idaho |
| Crawford, Bertha           | Manti               |
| Crawford, Katharine A      | Manti               |
| Crawford, Stanley          | Manti               |
| Cutler, William            | Whitney, Idaho      |
| Dahle, Albert Henry        | Logan               |
| Darley, Henry Thirkell     | Wellsville          |
| Deardon, Amos              | Henefer             |
| Deschamps, John Washington | Malad, Idaho        |
| Dewey, Charles Jesse       | Deweyville          |
| Dewey, Lettie              | Deweyville          |
| Eardley, George Stanley    | Anaconda, Mont.     |
| Egbert, Simon Roy          | Grace, Idaho        |
| Ellis, Hyrum               | Logan               |
| Ellis, William Henderson   | Logan               |
| Elwell, Isaac Jr.          | Logan               |
| Ewing, Florence            | Smithfield          |
| Ewing, Lester              | Smithfield          |
| Facer, Willard             | Willard             |
| Fjeldsted, Annie           | Logan               |
| Flint, Franklin            | Kaysville           |
| Flint, James               | Kaysville           |
| Foster, Elizabeth Curtis   | Logan               |
| Fowler, George             | Henefer             |
| Fuhrman, George Washington | Providence          |
| Fryer, Reed                | Soda Springs, Idaho |
| Gardner, Walter Wilson     | Baker City, Oregon  |
| Gibbs, John H              | Paradise            |
| Glenn, William Tyre        | Montpelier, Idaho   |
| Goldsberry, Orson Stanton  | Paradise            |
| Goodliffe, Clarence Marley | Snowville           |
| Goodwin, Roy               | Logan               |
| Greaves, John Carl         | Preston, Idaho      |
| Green, Arthur              | Layton              |
| Grewell, Oliver            | Mexico              |

|                                    |                       |
|------------------------------------|-----------------------|
| Griffin, Hattie . . . . .          | Newton                |
| Gustaveson, Annie . . . . .        | Providence            |
| Haddock, Margaret Anna. . . . .    | Bloomington, Idaho    |
| Hadfield, James H . . . . .        | Smithfield            |
| Hall, Elmer Warren . . . . .       | Garland               |
| Hancock, Joseph William . . . . .  | Mendon                |
| Hansen, Benjamin David . . . . .   | Soda Springs, Idaho   |
| Hansen, Charles . . . . .          | Iona, Idaho           |
| Hansen, Charles Willard . . . . .  | Logan                 |
| Hansen, Eugene Severin . . . . .   | Collinston            |
| Hansen, Hans L . . . . .           | Iona, Idaho           |
| Hansen, Hyrum . . . . .            | Goshen                |
| Hansen, Louis . . . . .            | Newton                |
| Hansen, Sophia . . . . .           | Newton                |
| Hardy, Edward A . . . . .          | Fielding              |
| Hardy, Fannie Janet . . . . .      | Fielding              |
| Hardy, Robert James . . . . .      | Fielding              |
| Harrison, Heber Eldredge . . . . . | Pinto                 |
| Hart, Emily Rosina . . . . .       | Bloomington, Idaho    |
| Haskell, James Edward . . . . .    | Newton                |
| Hendricks, Amy Gertrude . . . . .  | Richmond              |
| Heppler, John . . . . .            | Glenwood              |
| Herrick, Jane . . . . .            | Logan                 |
| Hiette, Sidney Walter . . . . .    | Payson                |
| Higgins, Samuel John . . . . .     | Ogden                 |
| Hill, Matthew . . . . .            | Malad, Idaho          |
| Hobbs, William Richard . . . . .   | Preston, Idaho        |
| Hodge, David . . . . .             | Lehi                  |
| Hodgman, Bruce . . . . .           | Hailey, Idaho         |
| Hogan, Ira Harris . . . . .        | Gentile Valley, Idaho |
| Hogensen, Alfred . . . . .         | Montpelier, Idaho     |
| Holmgren, Albert . . . . .         | Bear River City       |
| Hokanson, Hyrum Petty . . . . .    | Hyrum                 |
| Hokman, Marie Batilda . . . . .    | Pocatello, Idaho      |
| Holdaway, James . . . . .          | Deweyville            |
| Hollensworth, Florence . . . . .   | Grays, Idaho          |
| Homer, Benjamin . . . . .          | Trenton               |
| Homer, William . . . . .           | Trenton               |



|                          |                    |
|--------------------------|--------------------|
| Horrocks, Richard James  | Ogden              |
| Howell, Louis Gunnell    | Yost               |
| Howell, William Maughan  | Wellsville         |
| Hyde, Joseph Alonzo, Jr  | Nephi              |
| Irvine, Robert Leo       | Logan              |
| Jacobson, Alma           | Logan              |
| Jenkins, Moroni          | Logan              |
| Jensen, John Henry       | St. Charles, Idaho |
| Jensen, Peter            | Logan              |
| Jenson, Amy              | St. Charles, Idaho |
| Jenson, Irena            | Brigham City       |
| Jenson, Olaf Leo         | Bear River City    |
| Jeppson, Joseph Rudolph  | Millville          |
| Jessen, Harvey           | Anaconda, Montana  |
| Johansen, Engiber Amelia | Logan              |
| Johnson, Carl            | Newton             |
| Johnson, John Alma       | Logan              |
| Jones, Albert            | Malad, Idaho       |
| Jones, David H           | St. John, Idaho    |
| Jones, Franklin Morgan   | Malad, Idaho       |
| Jones, Ivor Llewelling   | Malad, Idaho       |
| Jones, James Tyler       | Malad, Idaho       |
| Jones, Joseph Perry      | Malad, Idaho       |
| Jones, Mary              | Logan              |
| Keith, Charles Forman    | Park City          |
| Krogue, Nelson Louis     | Bloomington, Idaho |
| Lallis, Charles James    | Mendon             |
| Lamb, James Hammer       | Coalville          |
| Larsen, Anton            | Logan              |
| Larsen, Mary Ann         | Newton             |
| Larsen, Noah             | College Ward       |
| Larsen, Annie            | Logan              |
| Madsen, Nelson           | Manti              |
| Madsen Niels Peter       | Fountain Green     |
| Mathews, Hopkin C.       | Providence         |
| Mathias, John Burbank    | Brigham City       |
| Mathias May              | Brigham City       |
| Maughan, Alice Farnes    | Petersboro         |

|                                |                   |
|--------------------------------|-------------------|
| May, Mariann .....             | Call's Fort       |
| Medford, John Freeman .....    | Gentile Valley    |
| Meikle, Alice .....            | Smithfield        |
| Merrill, Charles William ..... | Brigham City      |
| Merrill, Emma Irene .....      | Richmond          |
| Merrill, John Francis .....    | Brigham City      |
| Mickelson, Soren Peter .....   | Fountain Green    |
| Miller, Archie .....           | Alma, Wyoming     |
| Montrose, David Arthur .....   | Weston, Idaho     |
| Montrose, Ollie .....          | Weston, Idaho     |
| Montrose, Ray .....            | Logan             |
| Morgan, Ernest Emmit .....     | Logan             |
| Morgan, George Edward .....    | Franklin, Idaho   |
| Morgan, John Richard .....     | Willard           |
| Moss, Alexander .....          | Woods Cross       |
| Mulliner, Joseph .....         | Iona, Idaho       |
| Myers, John E. Jr .....        | Panguitch         |
| McFarland, Parley Blair .....  | Weber, Idaho      |
| McGowan, William Henry .....   | Challis, Idaho    |
| McGregor, William .....        | Gentile Valley    |
| Naef, Elsie .....              | Providence        |
| Nebeker, Roy .....             | Laketown, Idaho   |
| Nelsen, Blanche Jessie .....   | Fish Haven, Idaho |
| Nelson, Edna Louie .....       | Fish Haven, Idaho |
| Nelson, James A .....          | Pleasant Grove    |
| Nessen, Thomas .....           | Logan             |
| Newman, Stephen Bird .....     | Salt Lake City    |
| Nilson, Ella .....             | Smithfield        |
| Nilson, Marinda .....          | Smithfield        |
| Norton, George Asa .....       | Stewart, Montana  |
| O'Brien, Jesse .....           | Layton            |
| Olsen, Annie Christine .....   | Ovid, Idaho       |
| Olsen, Aaron Brigham .....     | Logan             |
| Orr, Joseph .....              | Liberty, Idaho    |
| Osborne, Ralph Reuben .....    | Blackfoot, Idaho  |
| Pace, William H .....          | New Harmony       |
| Pack, A. L .....               | Kamas             |
| Paine, Richard .....           | Georgetown, Idaho |

|                             |                    |
|-----------------------------|--------------------|
| Palmer, Ellen               | Plain City         |
| Parkinson, Leona            | Logan              |
| Parkinson, Lucy             | Franklin, Idaho    |
| Petersen, Sern Peter        | Ephraim            |
| Peterson, Carl Emil         | Smithfield         |
| Peterson, Charles Peter     | Richfield          |
| Peterson, Fred              | Logan              |
| Petterson, Archibald        | Ogden              |
| Powers, Diantha             | Smithfield         |
| Pugmire, Rich               | St. Charles, Idaho |
| Pulley, Edward Parley       | American Fork      |
| Ralph, Minnie               | Hyrum              |
| Rauscher, Edward Walter     | Frisco             |
| Raymond, Wallace            | Smithfield         |
| Redford, John               | Beaver, Idaho      |
| Reese, Laura Liana          | Brigham City       |
| Rhodes, Albert Joseph Mason | Salt Lake City     |
| Rich, Thomas Grover         | St. Charles, Idaho |
| Richards, Agnes             | Mendon             |
| Ricks, Harvey               | Logan              |
| Rigby, Alma                 | Hooper             |
| Roberts, John J             | Paradise           |
| Robinson, Frank             | Richmond           |
| Rose, Andrew, Jr            | Pleasant View      |
| Rose, Hyrum Oliver          | Weston, Idaho      |
| Ryan, William Joseph        | Montpelier, Idaho  |
| Saucier, Frederick Ervin    | Logan              |
| Scott, Ernest               | Millville          |
| Scott, John William E       | Millville          |
| Serman, John Atwood         | Murray             |
| Sheppard, George Henry      | Salt Lake City     |
| Shill, George William       | Salt Lake City     |
| Shurtliff, George Jeston    | Lewisville, Idaho  |
| Sill, Jesse                 | Layton             |
| Simonson, John Peter        | Newton             |
| Smeltzer, Lawrence Webster  | Salt Lake City     |
| Smith, Alexander            | Logan              |
| Smith, Annie Elaine         | Providence         |

|                            |                       |
|----------------------------|-----------------------|
| Smith, Joseph Astor, Jr    | Providence            |
| Sorensen, Frederick Jacob  | Mendon                |
| Spahn, Carl                | Salmon City, Idaho    |
| Spande, Thomas             | Logan                 |
| Sparks, William Jefferies  | Nephi                 |
| Sponberg, Lulu             | Franklin, Idaho       |
| Standing, John Robert      | Collinston            |
| Steed, Albert Arthur       | Ogden                 |
| Stephens, Thomas Nephi     | Bennington, Idaho     |
| Stephens, David            | St. John, Idaho       |
| Stevens, LeRoy A           | Holden                |
| Stewart, James Franklin    | St. Charles, Idaho    |
| Stewart, Robert            | Plain City            |
| Storer, James Arthur       | Idaho Falls, Idaho    |
| Sullivan, Julia            | Grace, Idaho          |
| Sutton, Ernest Charles     | Paris, Idaho          |
| Sweeten, George Gillis     | Mendon                |
| Sweeten, Mary Amanda       | Mendon                |
| Swenson, Frank             | Logan                 |
| Taggart, Frederick         | Morgan                |
| Tanner, Arthur LeRoy       | Logan                 |
| Tenney, Levi Stewart       | Colonia Diaz, Mexico  |
| Thatcher, Aaron Dunham, Jr | Logan                 |
| Thatcher, Afton            | Logan                 |
| Thatcher, Gilbert          | Gentile Valley, Idaho |
| Thatcher, Henry Kitchen    | Gentile Valley, Idaho |
| Thatcher, Howard Elmer     | Gentile Valley, Idaho |
| Thatcher, Luna M           | Logan                 |
| Thatcher, Orson Pratt      | Logan                 |
| Thatcher, William          | Logan                 |
| Thomas, Burton Lewis       | Bloomington, Idaho    |
| Thomas, Howard Lafayette   | Smithfield            |
| Thomas, Louis Joshua       | Malad, Idaho          |
| Thompson, Jennie           | Logan                 |
| Thorley, Frank Aldredge    | Cedar City            |
| Thornock, Joseph Emanuel   | Bloomington, Idaho    |
| Thorpe, John               | Samaria, Idaho        |
| Toombs, James A            | Willard               |

|                          |                     |
|--------------------------|---------------------|
| Turner, May              | Logan               |
| Twelves, Murray          | Provo               |
| Waddoups, Thomas Anson   | Bountiful           |
| Warner, William David    | Uintah              |
| Webb, Bernard, Graham    | Lehi                |
| Webb, Charles Franklin   | Oasis               |
| Webb, Frederick Mark     | Lehi                |
| Webster, Francis         | Cedar City          |
| Webster, Gertrude Nessie | Montpelier, Idaho   |
| Weekes, William Henry    | Lyman, Idaho        |
| Weileman, Gustave Arnold | Paris, Idaho        |
| Wheatley, John Gibbs     | Honeyville          |
| Whitmore, John Wiley     | Nephi               |
| Wilbur, Orli K           | Eden                |
| Wilson, Emma             | Ogden               |
| Wilson, Joseph Ellis Jr  | Logan               |
| Winward, Bertie William  | Whitney, Idaho      |
| Wise, Levi               | Garland             |
| Wood, Franklin           | Willard             |
| Wood, Millie             | Mendon              |
| Wood, William Joseph     | Echo                |
| Woodall, Demas Alexander | Soda Springs, Idaho |
| Woodland, Henry Elisha   | Willard             |

### *SPECIAL STUDENTS.*

|                           |                   |
|---------------------------|-------------------|
| Cook, Elmo W              | Logan             |
| Dalton, Marian            | Willard           |
| Ellsworth, Frank Blair    | Lewisville, Idaho |
| Fell, Daisy Alberta       | Ogden             |
| Fell, Winifred            | Ogden             |
| Fisher, George H          | Oxford, Idaho     |
| Foster, Florence Jeanette | Logan             |
| Gibson, Ella              | Smithfield        |
| Harrington, Nellie        | Eureka            |
| Hillman, William Henry    | Oxford, Idaho     |
| Homer, Ida May            | Oxford, Idaho     |
| Hoover, Edward C          | Montpelier, Idaho |
| Ivins, Edith              | St. George        |



|                                |                    |
|--------------------------------|--------------------|
| Katsunuma, Tomizo .....        | Logan              |
| Kroque, Emily Gertrude..       | Bloomington, Idaho |
| Maughan, Elizabeth Collins.... | Petersboro         |
| Paine, Veanettia .....         | Georgetown, Idaho  |
| Popplewell, Fred William.....  | Ogden              |
| Salmon, Annie .....            | Coalville          |
| Shrives, Harry Edwin .....     | Franklin, Idaho    |
| Tavey, Edith Frances .....     | Ogden              |
| Thomas, Vivian .....           | Malad, Idaho       |
| Webster, Rosman Armada.....    | Montpelier, Idaho  |
| Woolley, May .....             | Paris, Idaho       |
| Zundel, Jacob .....            | Willard            |

*WINTER AGRICULTURAL COURSE.*

|                            |                      |
|----------------------------|----------------------|
| Baumann, Edward C.....     | Duluth, Minnesota    |
| Crocket, John A .....      | Logan                |
| Green, Charles H .....     | Bear River City      |
| Green, James W .....       | Bear River City      |
| Hansen, Teesy.....         | Bear River City      |
| Jensen, James H .....      | Brigham City         |
| Kirkup, William .....      | Franklin, Idaho      |
| Krapfli, Albert .....      | Salt Lake City       |
| Larson, Charles .....      | Ft. Bridger, Wyoming |
| Larsen, Hyrum .....        | Newton               |
| Parkinson, F. S .....      | Franklin, Idaho      |
| Petersen, Sern Peter ..... | Newton               |

*WINTER DOMESTIC ARTS COURSE.*

|                              |              |
|------------------------------|--------------|
| Brough, Emily Ellen .....    | Portersville |
| Cardon, Mrs. J. E .....      | Logan        |
| Crockett, Fannie.....        | Logan        |
| Crockett, June.....          | Logan        |
| Fjeldsted, Estella .....     | Logan        |
| Gleason, Phoebe .....        | Garland      |
| Goodwin, Lottie Benson ..... | Logan        |
| Hodson, Mrs. Agnes.....      | Coalville    |
| Larsen, Eliza .....          | Collinston   |
| Larsen, Lauretta Mary.....   | Newton       |

|                                |              |
|--------------------------------|--------------|
| Larsen, Victoria .....         | Collinston   |
| Phillips, Josephine Maud ..... | Portersville |
| Smith, Maggie J.....           | Logan        |
| Snell, Ella.....               | Spanish Fork |
| Stewart, Carrie. ....          | Logan        |

The following name should have been placed under the heading of "Post Graduates" instead of "Special Students:"

|                                 |       |
|---------------------------------|-------|
| Foster, Florence Jeannette .... | Logan |
|---------------------------------|-------|

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### SUMMARY.

|                                   |     |
|-----------------------------------|-----|
| Post Graduates .....              | 3   |
| Seniors .....                     | 14  |
| Juniors .....                     | 9   |
| Sophomores .....                  | 31  |
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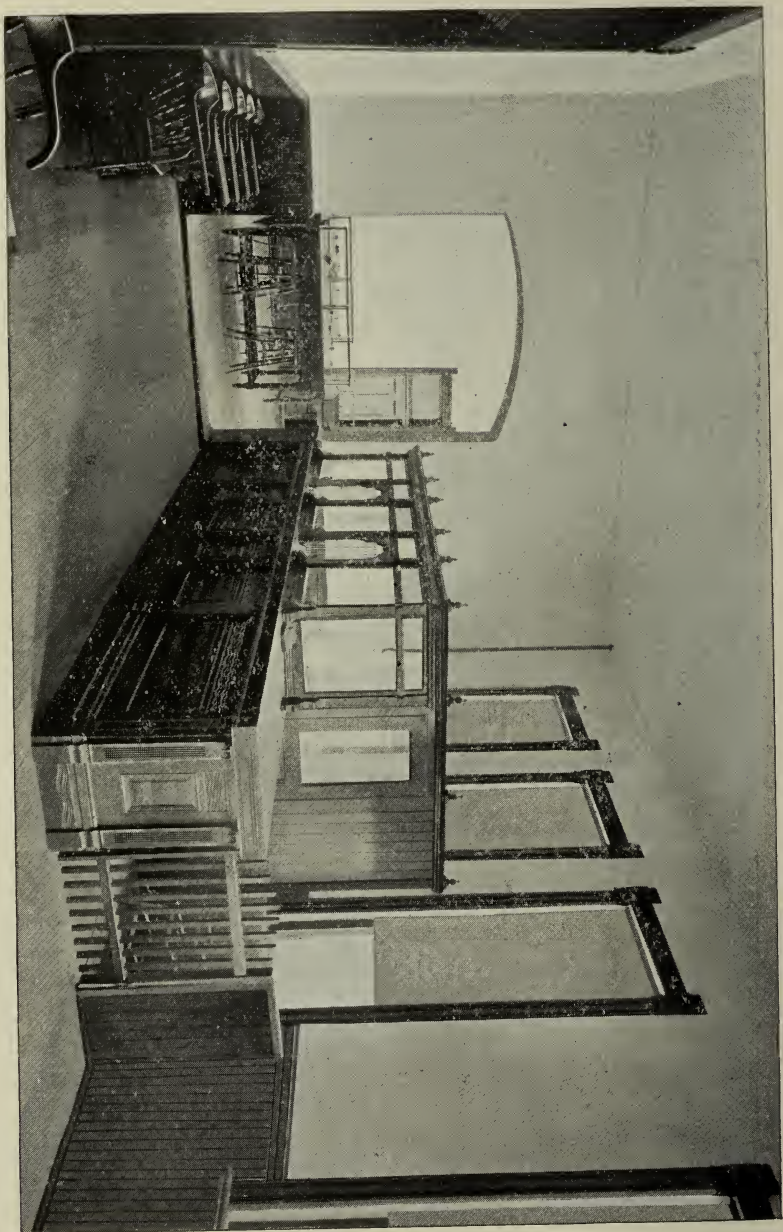
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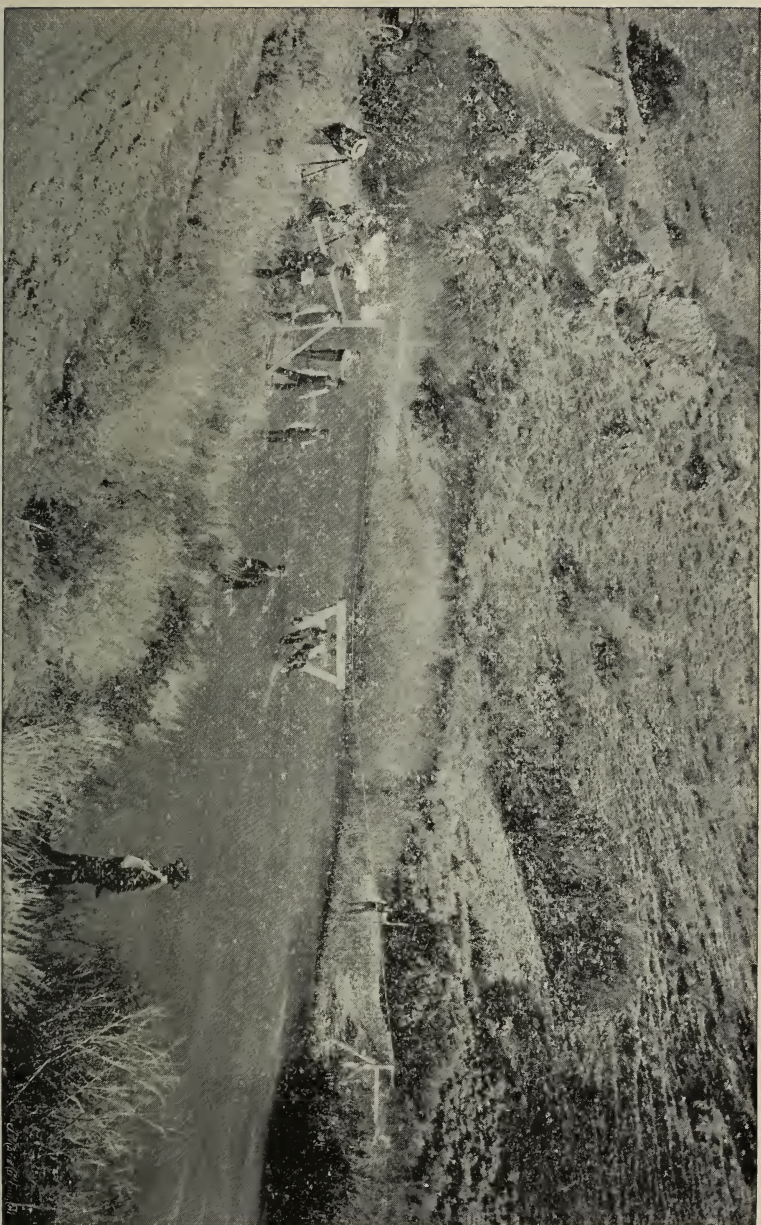


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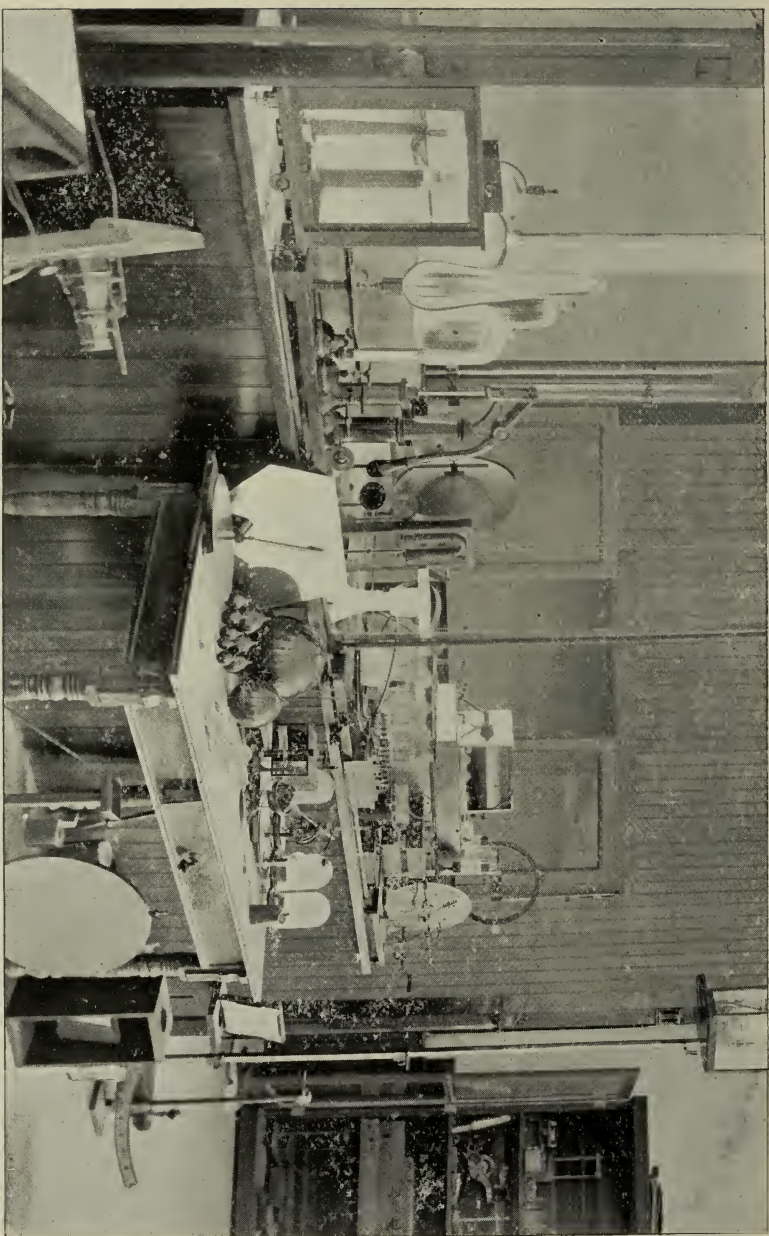


COMMERCIAL ROOM.





HYDROGRAPHIC SURVEYING.



PHYSICAL LABORATORY.

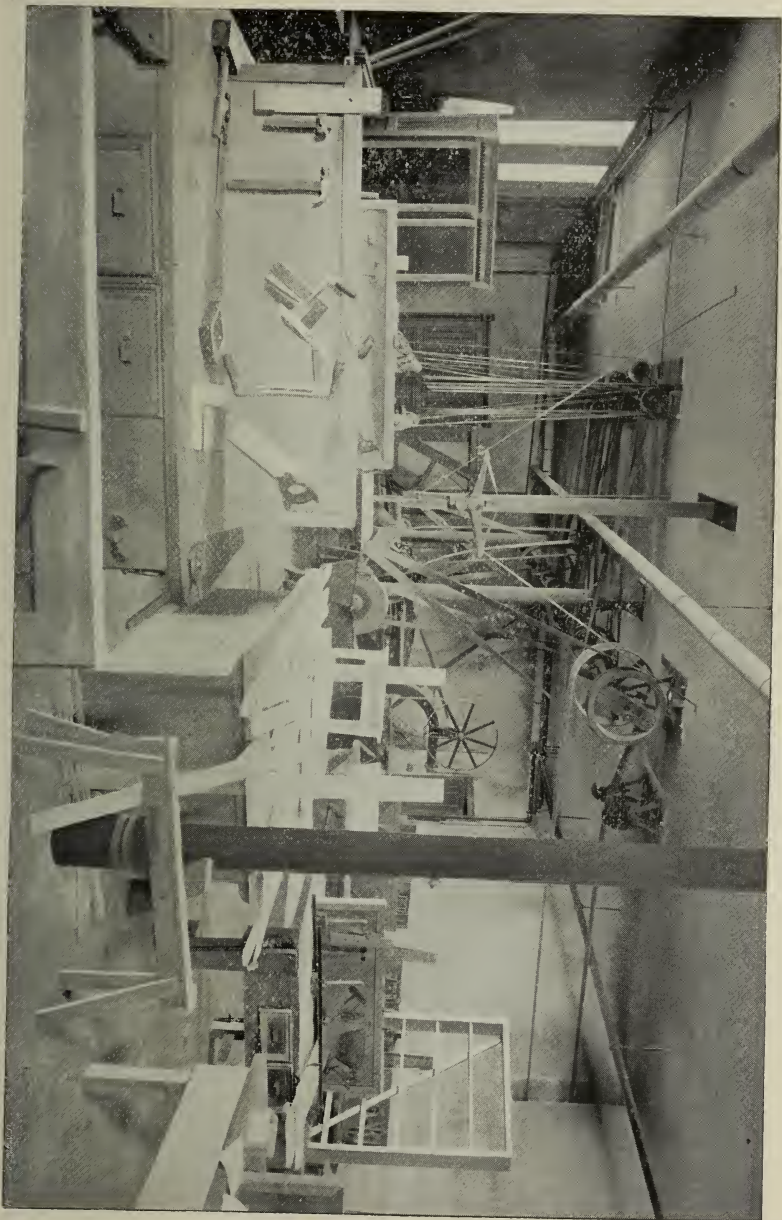




FORGE AND FOUNDRY.

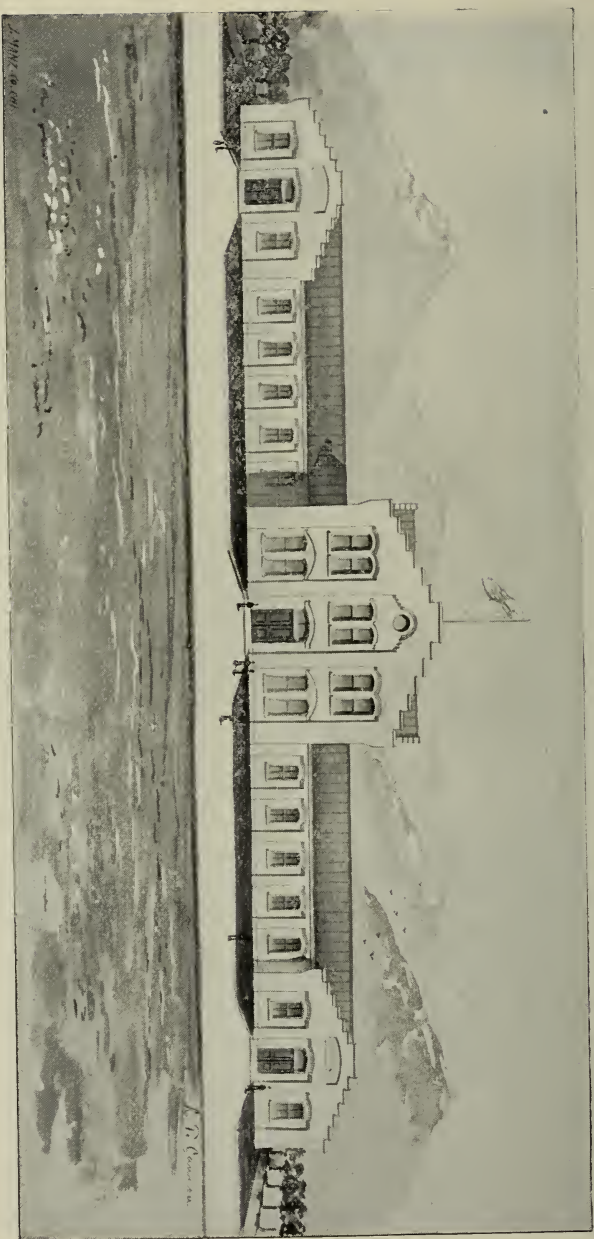


MACHINE SHOPS.

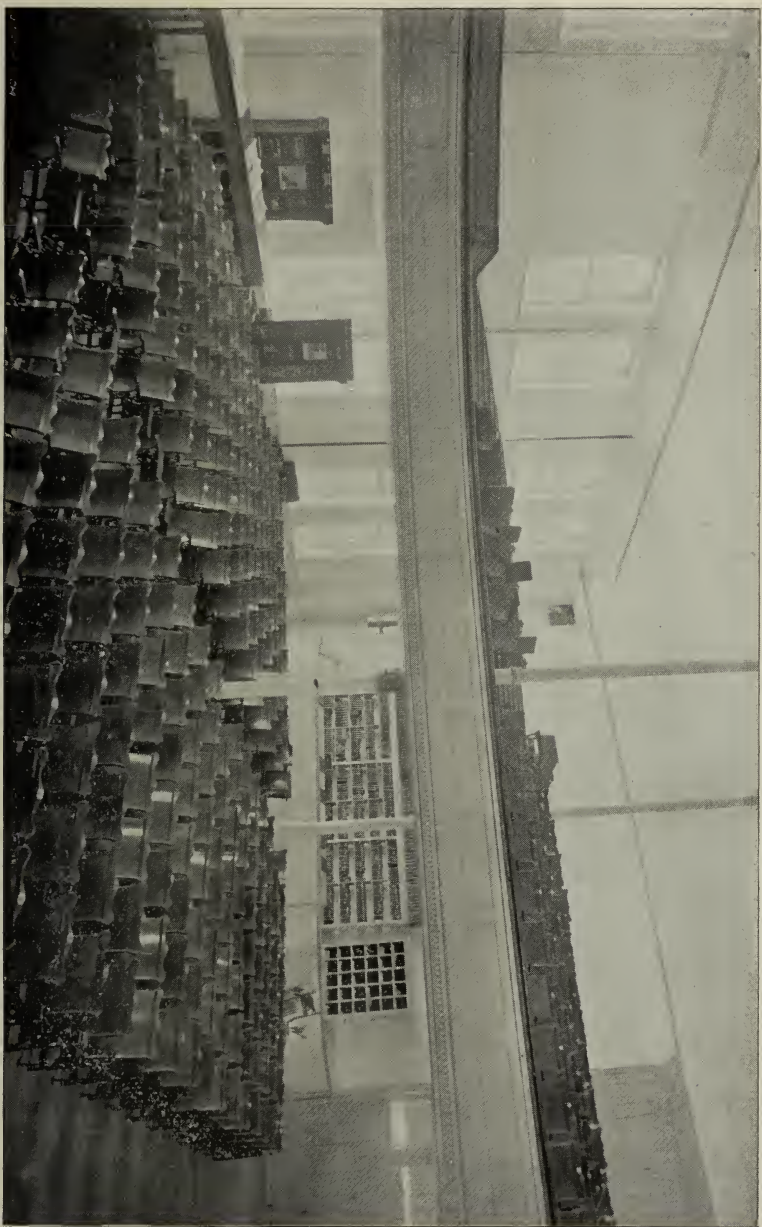


WOOD-WORKING SHOP.





MANUAL TRAINING BUILDING.

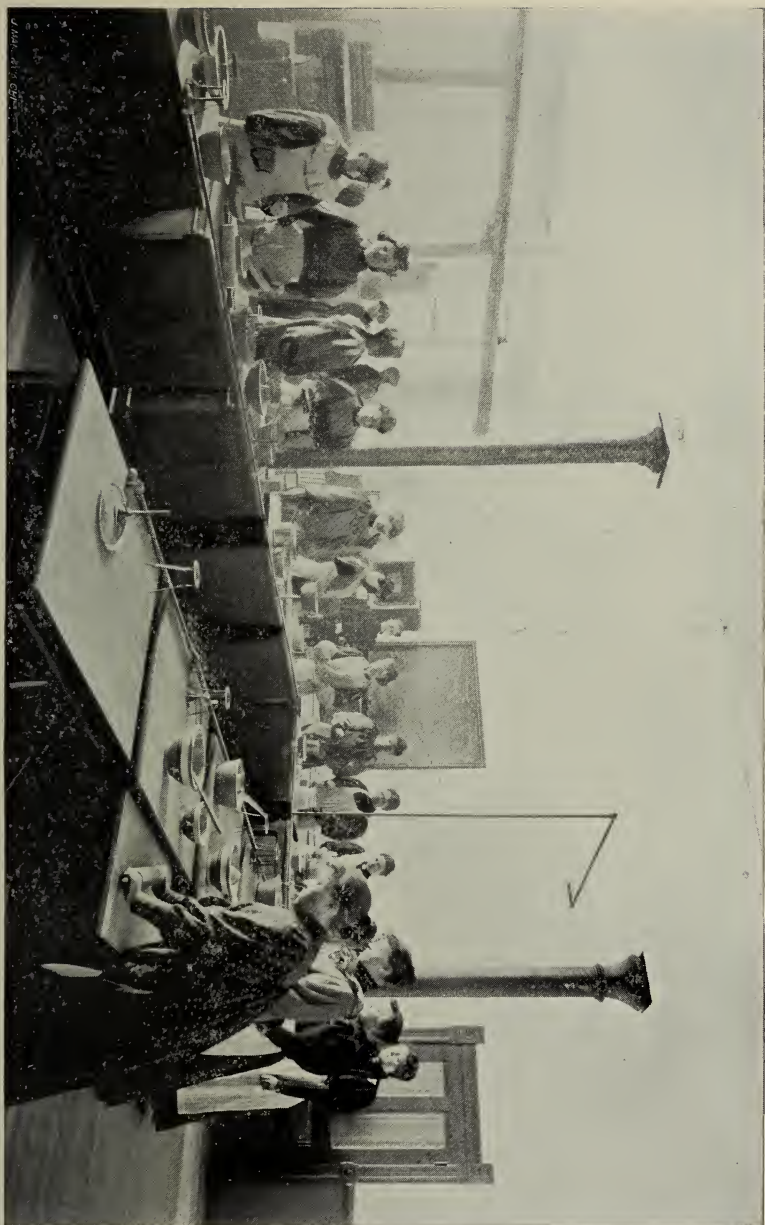


SECTION OF AUDITORIUM.





SEWING ROOM.



KITCHEN.

INTERIOR OF GREEN HOUSE.







BIOLOGICAL LABORATORY.



SECTION OF ENGLISH LIBRARY.

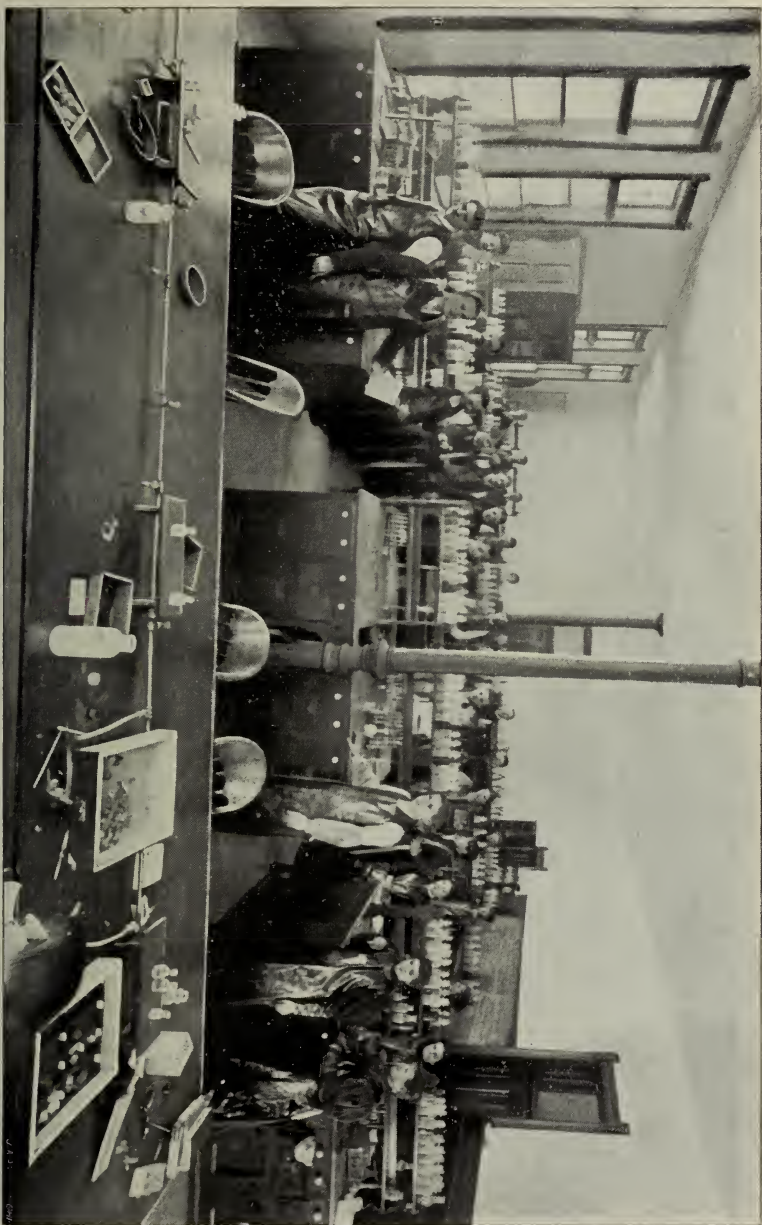




PRESIDENT'S OFFICE.



EXPERIMENT STATION CHEMICAL LABORATORY.



CHEMICAL LABORATORY.



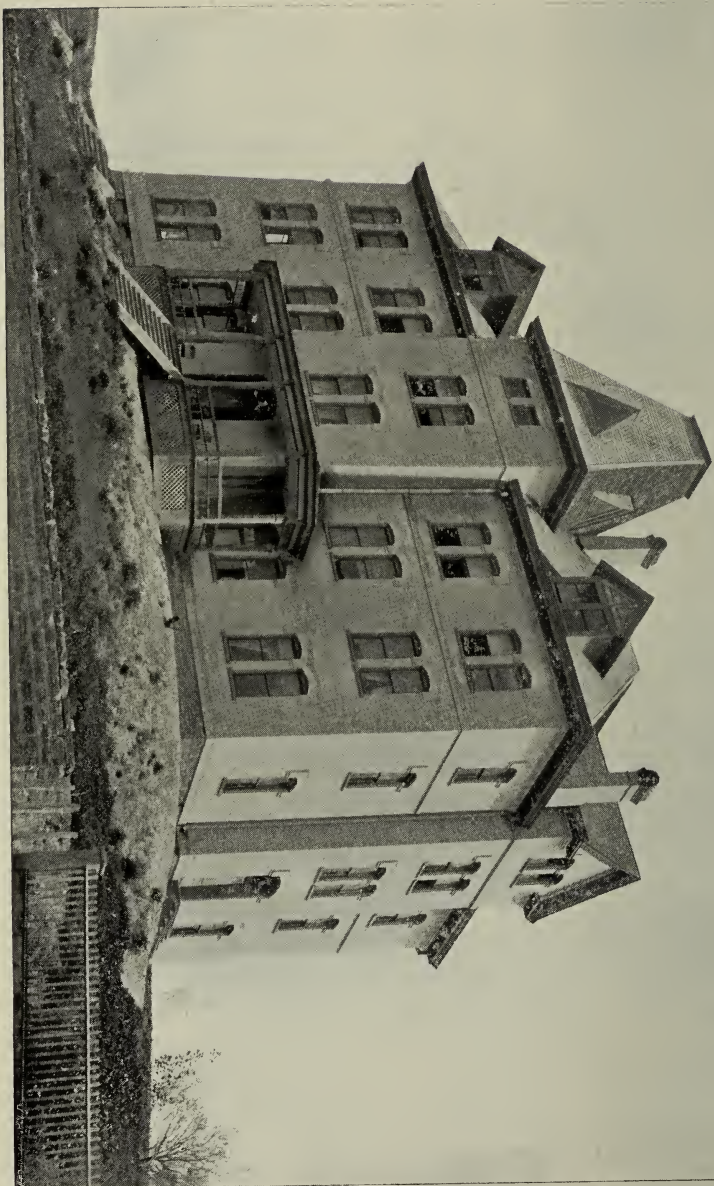


DAIRY.



MODEL BARN.

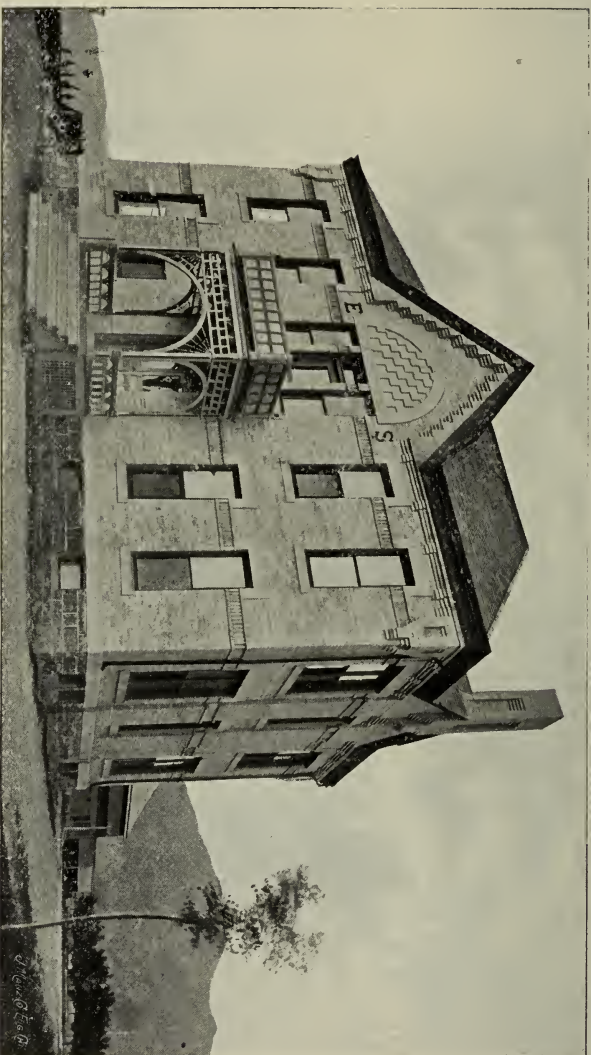




BOARDING HOUSE.



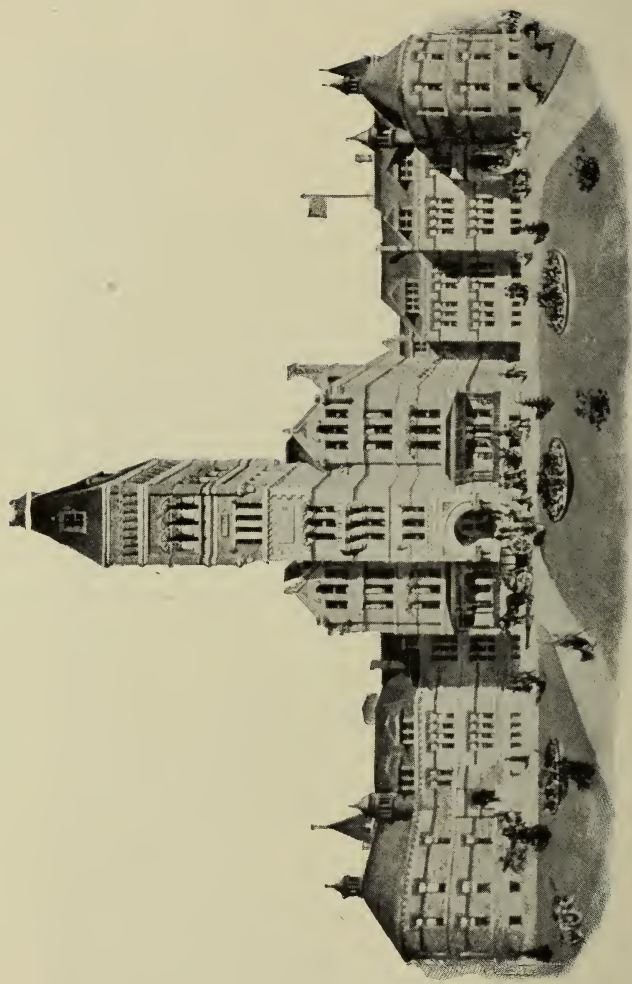
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EXPERIMENT STATION BUILDING.







MAIN COLLEGE BUILDING.

COMPLETE EXCEPTING THE CENTRAL FRONT.



ANNUAL CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF UTAH

FOR THE YEAR 1898-9.

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LOGAN, UTAH.



TRIBUNE JOB PRINTING CO., SALT LAKE.



# CALENDAR, 1898-1899.

1898.

| January.   |    |    |    |    |    |    | February. |    |    |    |    |    |    | March.    |    |    |    |    |    |    | April.    |    |    |    |    |    |    |
|------------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 9          | 10 | 11 | 12 | 13 | 14 | 15 | 13        | 14 | 15 | 16 | 17 | 18 | 19 | 13        | 14 | 15 | 16 | 17 | 18 | 19 | 10        | 11 | 12 | 13 | 14 | 15 | 16 |
| 16         | 17 | 18 | 19 | 20 | 21 | 22 | 20        | 21 | 22 | 23 | 24 | 25 | 26 | 20        | 21 | 22 | 23 | 24 | 25 | 26 | 17        | 18 | 19 | 20 | 21 | 22 | 23 |
| 23         | 24 | 25 | 26 | 27 | 28 | 29 | 27        | 28 | .. | .. | .. | .. | .. | 27        | 28 | 29 | 30 | 31 | .. | .. | 24        | 25 | 26 | 27 | 28 | 29 | 30 |
| 30         | 31 | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. |
| May.       |    |    |    |    |    |    | June.     |    |    |    |    |    |    | July.     |    |    |    |    |    |    | August.   |    |    |    |    |    |    |
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 15         | 16 | 17 | 18 | 19 | 20 | 21 | 12        | 13 | 14 | 15 | 16 | 17 | 18 | 10        | 11 | 12 | 13 | 14 | 15 | 16 | 14        | 15 | 16 | 17 | 18 | 19 | 20 |
| 22         | 23 | 24 | 25 | 26 | 27 | 28 | 19        | 20 | 21 | 22 | 23 | 24 | 25 | 17        | 18 | 19 | 20 | 21 | 22 | 23 | 21        | 22 | 23 | 24 | 25 | 26 | 27 |
| 29         | 30 | 31 | .. | .. | .. | .. | 26        | 27 | 28 | 29 | 30 | .. | .. | 24        | 25 | 26 | 27 | 28 | 29 | 30 | 28        | 29 | 30 | 31 | .. | .. | .. |
| ..         | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | 31        | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. |
| September. |    |    |    |    |    |    | October.  |    |    |    |    |    |    | November. |    |    |    |    |    |    | December. |    |    |    |    |    |    |
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 11         | 12 | 13 | 14 | 15 | 16 | 17 | 9         | 10 | 11 | 12 | 13 | 14 | 15 | 13        | 14 | 15 | 16 | 17 | 18 | 19 | 11        | 12 | 13 | 14 | 15 | 16 | 17 |
| 18         | 19 | 20 | 21 | 22 | 23 | 24 | 16        | 17 | 18 | 19 | 20 | 21 | 22 | 20        | 21 | 22 | 23 | 24 | 25 | 26 | 18        | 19 | 20 | 21 | 22 | 23 | 24 |
| 25         | 26 | 27 | 28 | 29 | 30 | .. | 23        | 24 | 25 | 26 | 27 | 28 | 29 | 27        | 28 | 29 | 30 | .. | .. | .. | 25        | 26 | 27 | 28 | 29 | 30 | 31 |
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1899.

| January.   |    |    |    |    |    |    | February. |    |    |    |    |    |    | March.    |    |    |    |    |    |    | April.    |    |    |    |    |    |    |
|------------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 15         | 16 | 17 | 18 | 19 | 20 | 21 | 12        | 13 | 14 | 15 | 16 | 17 | 18 | 12        | 13 | 14 | 15 | 16 | 17 | 18 | 9         | 10 | 11 | 12 | 13 | 14 | 15 |
| 22         | 23 | 24 | 25 | 26 | 27 | 28 | 19        | 20 | 21 | 22 | 23 | 24 | 25 | 19        | 20 | 21 | 22 | 23 | 24 | 25 | 16        | 17 | 18 | 19 | 20 | 21 | 22 |
| 29         | 30 | 31 | .. | .. | .. | .. | 26        | 27 | 28 | .. | .. | .. | .. | 26        | 27 | 28 | 29 | 30 | 31 | .. | 23        | 24 | 25 | 26 | 27 | 28 | 29 |
| ..         | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | 30        | .. | .. | .. | .. | .. | .. |
| May.       |    |    |    |    |    |    | June.     |    |    |    |    |    |    | July.     |    |    |    |    |    |    | August.   |    |    |    |    |    |    |
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 14         | 15 | 16 | 17 | 18 | 19 | 20 | 11        | 12 | 13 | 14 | 15 | 16 | 17 | 9         | 10 | 11 | 12 | 13 | 14 | 15 | 13        | 14 | 15 | 16 | 17 | 18 | 19 |
| 21         | 22 | 23 | 24 | 25 | 26 | 27 | 18        | 19 | 20 | 21 | 22 | 23 | 24 | 16        | 17 | 18 | 19 | 20 | 21 | 22 | 20        | 21 | 22 | 23 | 24 | 25 | 26 |
| 28         | 29 | 30 | 31 | .. | .. | .. | 25        | 26 | 27 | 28 | 29 | 30 | .. | 23        | 24 | 25 | 26 | 27 | 28 | 29 | 27        | 28 | 29 | 30 | 31 | .. | .. |
| ..         | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | 30        | 31 | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. |
| September. |    |    |    |    |    |    | October.  |    |    |    |    |    |    | November. |    |    |    |    |    |    | December. |    |    |    |    |    |    |
| S          | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  | S         | M  | T  | W  | T  | F  | S  |
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| 10         | 11 | 12 | 13 | 14 | 15 | 16 | 15        | 16 | 17 | 18 | 19 | 20 | 21 | 12        | 13 | 14 | 15 | 16 | 17 | 18 | 10        | 11 | 12 | 13 | 14 | 15 | 16 |
| 17         | 18 | 19 | 20 | 21 | 22 | 23 | 22        | 23 | 24 | 25 | 26 | 27 | 28 | 19        | 20 | 21 | 22 | 23 | 24 | 25 | 17        | 18 | 19 | 20 | 21 | 22 | 23 |
| 24         | 25 | 26 | 27 | 28 | 29 | 30 | 29        | 30 | 31 | .. | .. | .. | .. | 26        | 27 | 28 | 29 | 30 | .. | .. | 24        | 25 | 26 | 27 | 28 | 29 | 30 |
| ..         | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | ..        | .. | .. | .. | .. | .. | .. | 31        | .. | .. | .. | .. | .. | .. |

30734

8 My 00 g Utah agric. coll.

## COLLEGE CALENDAR, 1898-9.

FIRST TERM begins Tuesday, September 20, and ends Friday, December 23, 1898.

SECOND TERM begins Wednesday, January 4, 1899, and ends Thursday, April 6.

THIRD TERM begins Tuesday, April 11, and ends Tuesday, June 13, 1899.

Commencement Exercises occur from Sunday, June 11, to Tuesday, June 13, 1899.

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### HOLIDAYS.

Thanksgiving Day.

Christmas vacation, December 24, to January 3.

Washington's Birthday, February 22.

Arbor Day, April 14.

Decoration Day, May 30.

Summer vacation begins June 14.

## BOARD OF TRUSTEES.

|                                                |                |
|------------------------------------------------|----------------|
| HON. WILLIAM S. McCORNICK, President . . . . . | Salt Lake City |
| HON. EMILY S. RICHARDS . . . . .               | Salt Lake City |
| HON. MARRINER W. MERRILL . . . . .             | Richmond       |
| HON. D. C. ADAMS . . . . .                     | Salt Lake City |
| HON. LORENZO HANSEN . . . . .                  | Wellsville     |
| HON. JOSEPH MORRELL . . . . .                  | Logan          |
| HON. ROSINA N. BAGLEY . . . . .                | Ogden          |

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## OFFICERS OF THE BOARD.

|                                           |                |
|-------------------------------------------|----------------|
| WILLIAM S. McCORNICK, President . . . . . | Salt Lake City |
| JOSEPH E. WILSON, Secretary . . . . .     | Logan          |
| ALLAN M. FLEMING, Treasurer . . . . .     | Logan          |

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## EXPERIMENT STATION STAFF.

|                              |                                   |
|------------------------------|-----------------------------------|
| JOSEPH M. TANNER . . . . .   | President of the College          |
| LUTHER FOSTER . . . . .      | Director and Agriculturist        |
| GEORGE L. SWENDSEN . . . . . | Hydraulic Engineer                |
| F. B. LINFIELD . . . . .     | Dairy Husbandry                   |
| JOHN A. WIDTSOE* . . . . .   | Chemist                           |
| U. P. HEDRICK . . . . .      | Horticulturist                    |
| JAMES DRYDEN . . . . .       | Meteorologist and Poultry Manager |
| LEWIS A. MERRILL . . . . .   | Assistant Agriculturist           |
| JOHN A. CROCKETT . . . . .   | Assistant Dairyman                |
| JOHN STEWART . . . . .       | First Assistant Chemist           |
| JAMES C. THOMAS . . . . .    | Second Assistant Chemist          |
| ALLAN M. FLEMING . . . . .   | Treasurer                         |
| JOSEPH E. WILSON . . . . .   | Secretary                         |

\*Absent in Germany on leave.



## FACULTY.

Arranged in order of seniority of appointment, after the President.

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JOSEPH M. TANNER, PRESIDENT,  
Professor of Political Science.

JOHN T. CAINE, JR., B. S.,  
Principal of Preparatory Department.

JAMES DRYDEN,  
Assistant Professor of Meteorology and Stenography.

ELIAS J. MAC EWAN, M. A.,  
Professor of English Language and Literature.

F. B. LINFIELD, B. S. A.,  
Professor of Dairying and Animal Husbandry.

WILLARD S. LANGTON, B. S.,  
Assistant Professor of Mathematics and Biology.

JOHN A. WIDTSOE, B. S.,  
Professor of Chemistry and Mineralogy.  
(On leave of absence.)

MRS. DALINDA COTEY, B. S.,  
Professor of Domestic Arts.

MISS SARAH E. BOWEN,  
Instructor in Sewing, Dressmaking and Millinery.

JOSEPH JENSON,  
Professor of Mechanical Engineering,  
and Director of Work Shops.

MRS. SARA GODWIN GOODWIN,  
Librarian and Instructor in Music.

LUTHER FOSTER, B. S., M. S. A.,  
Professor of Agriculture and Director of Experiment  
Station.

LEWIS A. MERRILL, B. S.,  
Assistant Professor of Agriculture.

EDWARD W. ROBINSON,  
Assistant Professor of German, and Drawing.

SAMUEL W. DUNNING,  
First Lieutenant 16th Infantry, U. S. A.,  
Professor of Military Science and Tactics.

JOHN W. FARIS,  
Principal of the Commercial Department and Professor of  
Commercial Economics and Bookkeeping.

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Instructor in Elocution and Physical Culture.

JOSEPH E. WILSON,  
Instructor in Penmanship.

ULYSSES P. HEDRICK, B. S.,  
Professor of Botany, Horticulture and Entomology.

GEORGE L. SWENDSEN, C. E.,  
Professor of Civil Engineering.

CLARENCE E. SNOW, B. S.,  
Professor of Mathematics and Physics.

GEORGE THOMAS, B. A.,  
Professor of History and Instructor in Chemistry.

AUGUST J. HANSON,  
Foreman of Wood Working Department.

JULIEN P. GRIFFIN,  
Foreman of Iron Working Department.

JOHN STEWART, B. S.,  
Assistant in Chemical Laboratory of Experiment Station.

JAMES C. THOMAS,  
Assistant in Chemical Laboratory of Experiment Station.

JOHN A. CROCKETT,  
Assistant in Dairy Department.

## ESTABLISHMENT OF THE COLLEGE.

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An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of a recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbids the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land became available upon the admission of the Territory to Statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere :—

"SEC. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field."

"SEC. 10.—In the appointment of professors, instructors, and other officers and assistants of said College, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this Act for the common good, irrespective of sects or parties, political or religious."

It is clear that the Agricultural College was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." The legislative founders of this institution sought to place within reach of the producing classes, an education for which the older institutions had not, as a rule, made provisions.

The policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the great vocations of the people of Utah: agriculture, the mechanic arts, commerce and home work.

"The act of 1862," says Senator Morrill, "proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training, such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with equal scraps of labor and of instruction, or something



other than a college, they would not obey the national law."

Under an act of Congress, approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment Station.

Under an act of Congress, approved August 30, 1890, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The act provides that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$24,000.

The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborers' cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, two houses, apparatus, and salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, a veterinary laboratory, and the employment of teachers. The legislature of 1896 appropriated \$12,000 for the construction of workshops, and general expenses for one year. The legislature of 1897 gave \$41,000 for the erection of a laboratory, the extension of shops, the maintenance of a manual training school, and for the general expenses during two and a half years.

The value of the College property now in possession may be put at the conservative figure of \$238,700.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

"SEC. 4.—The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights and immunities,

franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively."

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### LOCATION.

The College is located on a broad hill overlooking the town, one mile east of Main Street, Logan, and commands a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is unsurpassed, and perhaps unequalled by that of any other college in the country. A few hundred yards to the south is the Logan River, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley, and seen through the clear atmosphere, constitute a delightful and impressive panorama. The city is noted for its freedom from vice; it is quiet, orderly, clean, and generally attractive, with neat homes, fine public buildings, and electric lights and water system; the citizens are thrifty and progressive. The city has a population of about 6,000, and is the capital and commercial centre of an agricultural county with more than three times that population, known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about twelve by sixty miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch Mountains, and one of the most beautiful and healthful valleys in the western region.

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### EQUIPMENT.

THE MAIN BUILDING is one of the finest in the West, being a large handsome brick structure, about 360 feet long and nearly 200 feet deep in the central part. It is complete as shown in the frontispiece, excepting the central front.

The basement contains:

The dairy rooms, equipped with the best apparatus for

the manufacture of butter and cheese on scientific principles;

The laundry, kitchen and dining rooms, which are efficiently fitted with the requisite apparatus in each division;

Several rooms adapted for military squad drill; an assaying room, and the laboratory of the civil engineering department.

On the first floor are situated:

A large auditorium, with seating capacity for 1,500 people, which is used for college entertainments, and for assemblies of the students and their friends;

A similar auditorium, capable of seating 400, used daily as a chapel, and for the weekly meetings of the College literary society;

The library and reading room, of which full details will be found on a following page;

The offices of President, Secretary, Professor of Domestic Arts, the sewing and millinery rooms, and several large class rooms.

On the second floor are found:

The biological, botanical, and entomological laboratories and lecture rooms, very efficiently equipped with the most modern apparatus for experiment and research in the respective sciences;

The offices and class room of the commercial department, which are well equipped with all the appliances for banking, commercial and general business;

Class rooms for English, mathematics, and modern languages.

On the third floor are:

The gymnasium and the museum, large rooms as fully equipped as the means at the disposal of the Board of Trustees have hitherto rendered possible, the gymnasium being also used as a drill hall for young women, and for social gatherings of the faculty and students;

The museum, which has a large unused capacity, and which it is hoped donations in any of the arts and manufactures or in geological, ethnological, mineralogical, zoological and other divisions of science, from the citizens of

Utah, or from other friends of education will gradually fill;

The music rooms, which are supplied with superior instruments.

The main building is heated by steam and lighted by electricity in every part. The rooms are light and pleasant and the halls spacious, extending on each floor the entire length of the building.

THE NEW SHOP BUILDING, situated a little south of the main building, is one story high, except the central part, which is two stories. The ground floor of this central part is fitted up to accommodate forty-eight students in carpentry. To the east of the carpentry room is the forge room, containing twenty-four power blast forges and anvils with complete equipment of vice benches and tools; in an offset to the north is the power room, containing one five-horse power electric motor and fan for the forge blast, and one ten-horse power motor and exhaust fan, which draws all smoke from the forges into underground pipes and thence through the exhaust fan to the smoke stack.

Immediately south of the carpentry room is a room used for the wood-working machinery, consisting of ten turning lathes, one planer, one hand saw, one universal saw table, one jig saw, grindstones, etc. Adjoining this on the south, is the iron-working machinery room. Its equipment consists of lathes, planer, drill press and milling machine. This room also contains the tool room and a fifteen-horse power electric motor, from which power is derived for all the machinery both in this room and in the wood-working machinery room. The second floor of the central part of the building is divided into three rooms, a class room for physics and mechanics, the director's office, and a department room well fitted with special drawing instruments and blue-printing apparatus. It also contains the annual class exhibit of students' work in mechanic arts.

The two rooms to the north of the central part, which are exactly similar to those south, are temporarily used as the students' chemical laboratory, and the experiment station chemical laboratory. The walls of the building are of brick

and the roof of corrugated iron; it is steam heated and well lighted and ventilated throughout.

THE EXPERIMENT STATION building is a large brick structure, containing the laboratories of the Agriculturist, Entomologist, and Horticulturist; the office of the Director of the Station, and the library of the Professor of English. Advanced students participate in the work of the various laboratories, and a series of experimental research is carried on in each division by the professor in charge.

A MODEL BARN AND STOCKYARD are connected with the College. The barn is a wooden building about sixty feet square and contains a silo, a root cellar, an engine room and separate quarters for horses, cattle, sheep and swine; also model storage divisions for hay, grain and farming and horticultural implements.

THE DORMITORY for young women contains accommodation for about seventy-five lady students. Each room is about 12x14 feet, exclusive of a good closet, and is furnished with chairs, tables, a wash-stand, a full set of chamber ware, a looking glass, and either a bedstead or two cots; there are also registers for efficient ventilation. In addition to the rooms for the students, there are rooms for matron and for cooks and domestics, a model kitchen, a large dining hall, a pantry supplied with modern conveniences, a laundry and bath rooms. A large reception room is used for students' receptions, under the auspices of the President's wife, the ladies of the faculty and the wives of the members of the faculty.

RESIDENCES for the College President, the Director of the Experiment Station, and the Farm Superintendent are situated on the campus. Cottages for farm laborers have also been provided.

A FORCING HOUSE AND A VETERINARY LABORATORY, both well fitted for their purposes, are situated on the College grounds.

THE FARM of about one hundred acres is well stocked



with the best breeds of cattle, sheep, swine and poultry, and is fully provided with improved implements and farm machinery.

Three and a half acres of ground, close to the College building are appropriated to the use of students, for athletic sports.

THE FACULTY consists of about twenty-five members, many of them of long and successful experience in practical and industrial, as well as general education.

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### OBJECTS.

The College is in several ways accomplishing the objects for which it has been endowed:—

I. It gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all its departments, while the students are kept in sympathy with the industrial occupations.

II. It teaches the sciences applied to the various industries of farm, shop and home. Chemistry, botany, entomology, biology, and mechanics are made prominent means of educating to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves, illustrates and fixes the daily lessons. At the same time lessons in agriculture, horticulture, engineering and household economy show the application of science; and all are enforced by actual experiment.

III. It trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm and household departments, is made a part of the general education for usefulness, and insures a means of living to all who make good use of it. At the same time it preserves habits of industry and manual exercise and cultivates a taste for rural and domestic pursuits.

IV. It strives to increase experimental knowledge of agriculture and horticulture. The provision for extensive and accurate research, made by establishing the Experiment Station as a distinct department of the College, offers assurance of more definite results than can be obtained by ordinary methods.

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### REQUIREMENTS FOR ADMISSION.

1. Graduates of the Eighth grade of the district schools are permitted to enter the sub-freshman year without examination.

2. To enter the freshman year of the long courses or the first year of the short courses the student must be at least fifteen years of age, and must pass a satisfactory examination in the following subjects, using the text books named or their equivalents :

1. Reading, spelling, and penmanship.
2. Geography—Appleton's *Higher Geography*.
3. United States History—Barne's *United States History*.
4. Grammar—Maxwell's or Sheldon's *Advanced Lessons*.
5. Arithmetic—Harper's *Second Book*.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above; they are also admitted upon completion of the sub-freshman studies in this College.

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### DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term. Irregular students are examined when they enter. The studies to be taken are assigned by the examiners and approved by the president. The entrance fee (\$5) is then paid at the secretary's

office; and the class card naming the studies to be pursued is countersigned by the president and the secretary. The card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the faculty.

When students enter for the second or third terms, the cards are secured from the secretary of the faculty, the studies assigned by the president, the cards signed by the professors and returned to the secretary, as before.

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### COURSES OF STUDY.

The first year is the same for all the four year courses, and there is but a slight variation in the second year. The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

1.—Students in either course of Domestic Arts take sewing and dressmaking in the freshman year, in the place of shopwork in wood and iron, as indicated by the footnote to the schedule. In the sophomore year, second term, they take lectures on cooking, and laboratory practice in cooking, in the place of trigonometry; and in the third term, lectures on the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

2.—In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students.

The studies of the first two years are planned to meet the requirements of the most numerous class of students, the majority of whom attend for two years or less after completing the studies of the district schools. These two years, as now planned in the schedule, provide as broad culture in a general way, and as thorough preparation for the special courses which follow, as the College is at present able to

offer. It cannot assume, therefore, to vary the courses further than indicated above; and students are expected to pursue the studies as here laid down or as many of them as they are able to pursue.

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### AGRICULTURAL COURSE.

The aim of this course is the general education and scientific training of the future agriculturists of Utah. The training is as thorough as is possible in the short time allotted. The principal exercises directly related to the successful pursuit of agriculture, are taught; but no pretension is made to train specialists in any one particular branch of science. The time for this is necessarily too short.

Under *agriculture* in the junior and senior years are included a great variety of subjects, the intelligent pursuit of which requires as a foundation a certain knowledge of chemistry, physiology, biology, botany, and other sciences. The freshman and sophomore years are intended to give this preparatory training.

The Elementary Agricultural Course, extending over a period of two years, is offered to those students whose time or means will not permit them to devote four years to a training for their future vocation. It is made as practical as possible in order to meet the demands of the most numerous class.

The College also offers during the winter, a special course of lectures on practical agricultural topics, intended to reach those farmers who can leave their farms for a few short winter months only, but who appreciate the advantages of a knowledge of the fundamental principles underlying their business. The lectures in this course are of a popular character and have met with much success.

The figures in the following course schedules denote the number of hours devoted to each subject during the week.

## STUDIES IN AGRICULTURAL COURSE.

## FRESHMAN YEAR.

| FIRST TERM.           | SECOND TERM.                          | THIRD TERM.            |
|-----------------------|---------------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5                  | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geom-<br>etry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5                   | Physics . . . . . 5    |
| Drawing . . . . . 2   | Drawing . . . . . 2                   | Drawing . . . . . 2    |
| Elocution . . . . . 3 | Elocution . . . . . 3                 | Elocution . . . . . 3  |

*Afternoon Work.*

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Shopwork . . . . . 10 | Shopwork . . . . . 10 | Shopwork . . . . . 10 |
|-----------------------|-----------------------|-----------------------|

## SOPHOMORE YEAR.

|                                              |                                         |                                         |
|----------------------------------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 3                        | Chemistry . . . . . 3                   | Chemistry . . . . . 3                   |
| Rhetoric . . . . . 2                         | Rhetoric . . . . . 5                    | Rhetoric . . . . . 2                    |
| Solid Geometry and<br>Higher Algebra . 5     | Trigonometry . . 5                      | Botany . . . . . 5                      |
| Civil Government and<br>Constitutional Law 5 | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 5 |

*Afternoon Work.*

|                       |                                         |                                         |
|-----------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 6 | Chemistry . . . . . 6                   | Chemistry . . . . . 6                   |
|                       | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 2 |

## JUNIOR YEAR.

|                        |                                         |                                         |
|------------------------|-----------------------------------------|-----------------------------------------|
| Physiological Botany 3 | Agricultural Chem-<br>istry . . . . . 3 | Agricultural Chem-<br>istry . . . . . 3 |
| Literature . . . . . 5 | Horticulture . . . . 5                  | Entomology . . . . 5                    |
| Psychology . . . . . 5 | German . . . . . 3                      | German . . . . . 3                      |
| German . . . . . 3     | Zoology . . . . . 5                     | Zoology . . . . . 2                     |
|                        |                                         | Rural Engineering . 3                   |

*Afternoon Work.*

|                        |                      |                      |
|------------------------|----------------------|----------------------|
| Physiological Botany 4 | Mineralogy . . . . 6 | Entomology . . . . 4 |
| Bacteriology . . . . 6 | Zoology . . . . . 2  | Zoology . . . . . 4  |

## SENIOR YEAR.

|                                             |                       |                       |
|---------------------------------------------|-----------------------|-----------------------|
| Dairying and Animal<br>Industry . . . . . 5 | Political Economy . 3 | Agronomy . . . . . 3  |
| Horticulture . . . . 3                      | Veterinary Science 5  | Veterinary Science 5  |
| German . . . . . 3                          | German . . . . . 3    | German . . . . . 3    |
| Cheese Making<br>Mondays.                   | Geology . . . . . 3   | or Literature . . . 5 |
|                                             | Stock Feeding . . . 2 | Geology . . . . . 3   |

*Afternoon Work.*

|                        |                       |                       |
|------------------------|-----------------------|-----------------------|
| Dairy Practice . . . 4 | Veterinary Anatomy 6  | Veterinary Clinic . 4 |
| Bookkeeping . . . . 6  | Stock Feeding . . . 2 | Geology . . . . . 4   |



# ELEMENTARY COURSE IN AGRICULTURE.

## FIRST YEAR.

| FIRST TERM.            | SECOND TERM.             | THIRD TERM.             |
|------------------------|--------------------------|-------------------------|
| Grammar . . . . . 5    | Grammar . . . . . 5      | Grammar . . . . . 5     |
| Arithmetic . . . . . 5 | Arithmetic . . . . . 5   | Arithmetic . . . . . 5  |
| Drawing . . . . . 2    | Drawing . . . . . 2      | Rural Engineering . 3   |
| Breeds and Breeding 5  | Chemistry . . . . . 3    | Elementary Botany 5     |
|                        | Soils, Crops, etc. . . 5 |                         |
|                        | <i>Afternoon</i>         |                         |
| Wood Shop . . . . . 10 | Stock Judging . . . 2    | Agricultural Practice 4 |
|                        | Agricultural Practice 4  | Botanical Practice . 4  |

## SECOND YEAR.

|                          |                                           |                                         |
|--------------------------|-------------------------------------------|-----------------------------------------|
| Geography . . . . . 5    | Reading . . . . . 5                       | U. S. History . . . . 5                 |
| General History . . . 5  | Penmanship . . . . . 2                    | Reading . . . . . 2                     |
| Horticulture . . . . . 3 | Veterinary Science 5                      | Entomology . . . . . 5                  |
| Penmanship . . . . . 5   | Stock Feeding . . . 2                     | Dairying . . . . . 5                    |
|                          | <i>Afternoon.</i>                         |                                         |
| Iron Shop . . . . . 10   | Veterinary . . . . . 6                    | Dairy Practice . . . 4                  |
|                          | Agricultural and Horticultural Practice 2 | Agricultural and Horticultural Practice |

# MECHANICAL ENGINEERING COURSE.

The aim of the Mechanical Engineering Course is to afford the student such training as will qualify him to deal intelligently with engineering problems in general, and prepare him for a professional career. While the distinctive purpose of the course is to give instruction in the designing and construction of machinery, considerable instruction is given in municipal, irrigation, and general engineering, to form a basis for practice in these special branches.

The instruction in all branches aims to blend the theoretical with the practical, so that the student may become familiar not only with the purely scientific phase of the work, but with its application to modern practice. The student is brought, as early as possible, into contact with practical problems, the graphical as well as the analytical method being used throughout in their solution. Besides the practical tendency of the course, it has a high disciplin-

ary value, and is especially adapted to develop originality of thought and action.

The more strictly professional work may be classified as mathematics, physics, applied mechanics, drawing, and shopwork. Sufficient work in English, history, and other general subjects is given throughout the course to meet all ordinary demands.

## STUDIES IN MECHANICAL ENGINEERING COURSE

### FRESHMAN YEAR.

| FIRST TERM.           | SECOND TERM.                          | THIRD TERM.            |
|-----------------------|---------------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5                  | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geom-<br>etry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5                   | Physics . . . . . 5    |
| Elocution . . . . . 3 | Elocution . . . . . 3                 | Elocution . . . . . 3  |
| Drawing . . . . . 2   | Drawing . . . . . 2                   | Drawing . . . . . 2    |

#### *Afternoon Work.*

|                       |                        |                       |
|-----------------------|------------------------|-----------------------|
| Shopwork . . . . . 10 | Shop Work . . . . . 10 | Shopwork . . . . . 10 |
|-----------------------|------------------------|-----------------------|

### SOPHOMORE YEAR.

|                                              |                       |                                       |
|----------------------------------------------|-----------------------|---------------------------------------|
| Chemistry . . . . . 3                        | Chemistry . . . . . 3 | Chemistry . . . . . 3                 |
| Rhetoric . . . . . 2                         | Rhetoric . . . . . 5  | Rhetoric . . . . . 2                  |
| Solid Geometry and<br>Higher Algebra . 5     | Trigonometry . . . 5  | Analytical Geometry 5                 |
| Civil Government and<br>Constitutional Law 5 |                       | Elementary Me-<br>chanics . . . . . 3 |
|                                              |                       | Surveying . . . . . 2                 |

#### *Afternoon Work.*

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Chemistry . . . . . 6 | Chemistry . . . . . 6 | Chemistry . . . . . 6 |
| Shopwork . . . . . 4  | Pattern Making . . 4  | Field Surveying . . 4 |

### JUNIOR YEAR.

|                                        |                                       |                                           |
|----------------------------------------|---------------------------------------|-------------------------------------------|
| Heat and Electricity 5                 | Hydraulics . . . . . 5                | Materials of En-<br>gineering . . . . . 5 |
| Calculus . . . . . 3                   | Calculus . . . . . 5                  | Calculus . . . . . 3                      |
| Mechanical Drawing 5                   | Descriptive Geom-<br>etry . . . . . 6 | Metalurgy, Iron and<br>Steel . . . . . 2  |
| Elements of Me-<br>chanism . . . . . 5 | Mechanical Drawing 4                  | Mechanical Drawing 5                      |
|                                        |                                       | Hydraulics . . . . . 3                    |

#### *Afternoon Work.*

|                       |                      |                      |
|-----------------------|----------------------|----------------------|
| Machine Shops . . . 6 | Machine Shops . . 10 | Machine Shops . . 10 |
| Physics . . . . . 4   |                      |                      |

SENIOR YEAR.

|                                  |                                                  |                                   |
|----------------------------------|--------------------------------------------------|-----------------------------------|
| Applied Mechanics . . . . . 5    | Applied Mechanics . . . . . 5                    | Applied Mechanics . . . . . 5     |
| Steam Engineering . . . . . 3    | Steam Engineering . . . . . 3                    | Steam Engineering . . . . . 3     |
| Literature . . . . . 5           | Irrigation Engineering . . . . . 5               | Applied Electricity . . . . . 5   |
| Dynamics of Machines . . . . . 3 | Power, Measurement, and Transmission . . . . . 5 | Municipal Engineering . . . . . 5 |

*Afternoon Work.*

|                         |                         |                     |
|-------------------------|-------------------------|---------------------|
| Machine Design . . . 10 | Machine Design . . . 10 | Thesis . . . . . 10 |
|-------------------------|-------------------------|---------------------|

**CIVIL ENGINEERING COURSE.**

The technical instruction in this course extends over a period of two years, and is intended to afford a practical and theoretical training in those subjects needed to prepare young men to undertake, intelligently the problems that ordinarily present themselves in the profession of the civil engineer. Prominence is given to hydraulics, especially that part of the subject pertaining to irrigation systems and the use of water power. The training in surveying will qualify the student to deal intelligently with any problem that may arise in the various kinds of surveying. While in all the subjects of this course, much importance is given to the practical work in the field, yet the value of a strong theoretic training is not lost sight of; and therefore strong courses in mathematics are given, together with the courses in literature and science necessary to make up the general education of every citizen.

STUDIES IN CIVIL ENGINEERING COURSE.

FRESHMAN YEAR.

| FIRST TERM.           | SECOND TERM.                     | THIRD TERM.            |
|-----------------------|----------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5             | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geometry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5              | Physics . . . . . 5    |
| Elocution . . . . . 3 | Elocution . . . . . 3            | Elocution . . . . . 3  |
| Drawing . . . . . 2   | Drawing . . . . . 2              | Drawing . . . . . 2    |

*Afternoon Work.*

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Shopwork . . . . . 10 | Shopwork . . . . . 10 | Shopwork . . . . . 10 |
|-----------------------|-----------------------|-----------------------|

## SOPHOMORE YEAR.

|                                              |   |                      |   |                                     |   |
|----------------------------------------------|---|----------------------|---|-------------------------------------|---|
| Chemistry . . . . .                          | 3 | Chemistry . . . . .  | 3 | Chemistry . . . . .                 | 3 |
| Rhetoric . . . . .                           | 2 | Rhetoric . . . . .   | 5 | Rhetoric . . . . .                  | 2 |
| Solid Geometry and<br>Higher Algebra . . .   | 5 | Trigonometry . . . . | 5 | Analytical Geometry                 | 5 |
| Civil Government and<br>Constitutional Law . | 5 |                      |   | Elementary Me-<br>chanics . . . . . | 3 |
|                                              |   |                      |   | Surveying . . . . .                 | 2 |

*Afternoon Work.*

|                     |   |                      |   |                       |   |
|---------------------|---|----------------------|---|-----------------------|---|
| Chemistry . . . . . | 6 | Chemistry . . . . .  | 6 | Chemistry . . . . .   | 6 |
| Shopwork . . . . .  | 4 | Pattern-Making . . . | 4 | Field Surveying . . . | 4 |

## JUNIOR YEAR.

|                                      |   |                      |   |                                    |   |
|--------------------------------------|---|----------------------|---|------------------------------------|---|
| Heat and Electricity .               | 5 | Hydraulics . . . . . | 5 | Hydraulics . . . . .               | 3 |
| Calculus . . . . .                   | 3 | Calculus . . . . .   | 5 | Materials of Eng'ng                | 5 |
| Surveying . . . . .                  | 3 | Descriptive Geom'try | 6 | Roads and Pave-<br>ments . . . . . | 3 |
| Mechanical Drawing .                 | 2 | Mechanical Drawing . | 2 | Calculus . . . . .                 | 3 |
| Elements of Mech-<br>anism . . . . . | 5 |                      |   | Metallurgy . . . . .               | 2 |
|                                      |   |                      |   | Mechanical Drawing                 | 2 |

*Afternoon Work.*

|                                              |   |                                      |   |                                                          |   |
|----------------------------------------------|---|--------------------------------------|---|----------------------------------------------------------|---|
| Field Practice in En-<br>gineering . . . . . | 6 | Drawing and De-<br>signing . . . . . | 6 | Hydrographic Sur-<br>veying and Design-<br>ing . . . . . | 3 |
| Physics . . . . .                            | 4 |                                      |   |                                                          |   |

## SENIOR YEAR.

|                      |   |                                           |   |                                      |   |
|----------------------|---|-------------------------------------------|---|--------------------------------------|---|
| Higher Surveying . . | 5 | Power, Measurement,<br>and Transmission . | 5 | Applied Mechanics .                  | 5 |
| Applied Mechanics .  | 5 | Applied Mechanics .                       | 5 | Applied Electricity .                | 5 |
| Literature . . . . . | 5 | Irrigation Engin'r'g                      | 5 | Municipal Engin-<br>eering . . . . . | 5 |
| Steam Engineering .  | 3 | Railroad Structures .                     | 3 |                                      |   |

*Afternoon Work.*

|                                                         |   |                                        |   |                        |  |
|---------------------------------------------------------|---|----------------------------------------|---|------------------------|--|
| Experimental Work<br>Engineering De-<br>signs . . . . . | 6 | Mineralogy and As-<br>saying . . . . . | 6 | Preparation of Thesis. |  |
|---------------------------------------------------------|---|----------------------------------------|---|------------------------|--|

## DOMESTIC ARTS COURSE.

The course for young women is in general the same as for young men in the four years' course in agriculture, except in the hours devoted to the shop and the farm. In place of these there are special studies adapted to women's work. The value and necessity of special training in household economy are too well known to require explanation. It will be seen that special attention is given to those

branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to horticulture, floriculture, and economic botany should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, as adapted to window gardening, in the preparation of the soil, and in the growth of vegetables and small fruits. Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work.

Upon completion of the freshman and sophomore years of the regular Domestic Arts Course, the student is entitled to a certificate of graduation in the two years' course.

## STUDIES IN DOMESTIC ARTS COURSE.

### FRESHMAN YEAR.

| FIRST TERM.           | SECOND TERM.                          | THIRD TERM.            |
|-----------------------|---------------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5                  | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geom-<br>etry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5                   | Physics . . . . . 5    |
| Elocution . . . . . 3 | Elocution . . . . . 3                 | Elocution . . . . . 3  |
| Drawing . . . . . 2   | Drawing . . . . . 2                   | Drawing . . . . . 2    |

### *Afternoon Work.*

|                                        |                                     |                                       |
|----------------------------------------|-------------------------------------|---------------------------------------|
| Laundrying and Sew-<br>ing . . . . . 5 | Sewing . . . . . 5                  | Dressmaking . . . . . 5               |
| Physical Culture . . 3<br>(Elective.)  | Physical Culture . 3<br>(Elective.) | Physical Culture . . 3<br>(Elective.) |



## SOPHOMORE YEAR.

|                                                |                                         |                                         |
|------------------------------------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 3                          | Chemistry . . . . . 3                   | Chemistry . . . . . 3                   |
| Rhetoric . . . . . 2                           | Rhetoric . . . . . 5                    | Rhetoric . . . . . 2                    |
| Solid Geometry and<br>Higher Algebra . 5       | Cooking (Lectures) 5                    | Science of Nutrition 5                  |
| Civil Government and<br>Constitutional Law . 5 | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 5 |

*Afternoon Work.*

|                        |                       |                       |
|------------------------|-----------------------|-----------------------|
| Fruit Work . . . . . 4 | Cooking Practice . 4  | Cooking Practice . 4  |
| Chemistry . . . . . 6  | Chemistry . . . . . 6 | Chemistry . . . . . 6 |

## JUNIOR YEAR.

|                        |                                           |                     |
|------------------------|-------------------------------------------|---------------------|
| Literature . . . . . 5 | German . . . . . 3                        | Hygiene . . . . . 5 |
| German . . . . . 3     | Trigonometry . . . 5                      | German . . . . . 3  |
| Horticulture . . . . 3 | Zoology . . . . . 5                       | Botany . . . . . 5  |
| Psychology . . . . . 5 | Designing, Cutting<br>and Fitting . . . 5 | Zoology . . . . . 2 |

*Afternoon Work.*

|                        |                      |                        |
|------------------------|----------------------|------------------------|
| Bacteriology . . . . 6 | Zoology . . . . . 2  | Floriculture . . . . 6 |
|                        | Mineralogy . . . . 6 | Zoology . . . . . 4    |

## SENIOR YEAR.

|                                       |                       |                        |
|---------------------------------------|-----------------------|------------------------|
| Physiological Botany 3                | Political Economy . 3 | Literature . . . . . 5 |
| German . . . . . 3                    | Organic Chemistry 5   | German . . . . . 3     |
| Household Manage-<br>ment . . . . . 5 | German . . . . . 3    | Geology . . . . . 3    |
| Dairying . . . . . 3                  | Fancy Work . . . . 2  | Entomology . . . . 5   |
| Cheese Making on<br>Mondays           | Geology . . . . . 3   | Fancy Work . . . . 2   |

*Afternoon Work.*

|                        |                     |                      |
|------------------------|---------------------|----------------------|
| Dairying . . . . . 4   | Book-keeping . . 10 | Geology . . . . . 4  |
| Physiological Botany 4 |                     | Entomology . . . . 4 |

**DOMESTIC ARTS SHORT COURSE.**

This includes the studies of the freshman and sophomore years as given in the regular Domestic Arts Course. The privilege is given of substituting, subject to the approval of the faculty, a household economy study for some study in the regular sophomore year.

**COMMERCIAL COURSE.**

The object of this course is to broaden the intelligence of accountants, and to prepare students for positions as busi-

ness men, who form a large class, having a direct and important relation to the material, social, and political life of the nation. They should have associated with their technical work a knowledge of those subjects that will give them an enlarged view of their varied relations as citizen of the state. The College, therefore, offers here a much broader general education than is common in commercial courses.

The technical feature of the course is a thorough training in penmanship, typewriting, stenography, commercial arithmetic, bookkeeping, business economics, political economy, history of commerce, and commercial law. The course is broad enough to prepare students for teaching, or for the study of the law. For those who are unable to take the four years' course, a course of two years is offered, which will fairly well qualify them for positions as accountants and stenographers. The department is well equipped with desks, counters, and typewriters, making the presentation of the technical work as practical as is possible in a college.

## STUDIES IN COMMERCIAL COURSE.

### FRESHMAN YEAR.

| FIRST TERM.           | SECOND YEAR.                          | THIRD TERM.            |
|-----------------------|---------------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5                  | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geom-<br>etry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5                   | Physics . . . . . 5    |
| Drawing . . . . . 2   | Drawing . . . . . 2                   | Drawing . . . . . 2    |
| Elocution . . . . . 3 | Elocution . . . . . 3                 | Elocution . . . . . 3  |

#### *Afternoon Work.*

|                         |                         |                         |
|-------------------------|-------------------------|-------------------------|
| Penmanship . . . . . 5  | Penmanship . . . . . 5  | Penmanship . . . . . 5  |
| Typewriting . . . . . 5 | Typewriting . . . . . 5 | Typewriting . . . . . 5 |

### SOPHOMORE YEAR.

|                                                  |                                         |                                         |
|--------------------------------------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 3                            | Chemistry . . . . . 3                   | Chemistry . . . . . 3                   |
| Rhetoric . . . . . 2                             | Rhetoric . . . . . 5                    | Rhetoric . . . . . 2                    |
| Solid Geometry and<br>Higher Algebra . . . . . 5 | Trigonometry . . . . . 5                | Analytical Geometry . . . . . 5         |
| Civil Government and<br>Const. Law . . . . . 5   | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 5 |
|                                                  |                                         | Surveying . . . . . 2                   |

*Afternoon Work.*

|                      |                      |                                 |
|----------------------|----------------------|---------------------------------|
| Chemistry . . . . .6 | Chemistry . . . . .6 | Chemistry . . . . .6            |
|                      | Anatomy . . . . .2   | Anatomy or Surveying . . . . .2 |

## JUNIOR YEAR.

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| Stenography . . . . .5 | Stenography . . . . .5 | Stenography . . . . .5 |
| German . . . . .3      | German . . . . .3      | German . . . . .3      |
| Calculus . . . . .3    | Calculus . . . . .5    | Botany . . . . .5      |
| Psychology . . . . .5  | Zoology . . . . .5     | Zoology . . . . .2     |
|                        |                        | Hist. of Commerce . .5 |

*Afternoon Work.*

|                         |                       |                       |
|-------------------------|-----------------------|-----------------------|
| Bacteriology . . . . .6 | Mineralogy . . . . .6 | Bookkeeping . . . .10 |
|                         | Zoology . . . . .2    |                       |

## SENIOR YEAR.

|                       |                       |                                        |
|-----------------------|-----------------------|----------------------------------------|
| Commercial Law . . .5 | Commercial Law . . .5 | Commercial Law . . .5                  |
| German . . . . .3     | Geology . . . . .3    | Geology . . . . .3                     |
| Literature . . . . .5 | German . . . . .3     | German . . . . .3                      |
| Com'l Calculations .5 | Political Economy .3  | Literature . . . . .5                  |
|                       | Business Customs .2   | Auditing and Experting of Accounts. .2 |

*Afternoon Work.*

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects, from 2 to 4 daily.

## STUDIES IN SHORT COMMERCIAL COURSE.

## FIRST YEAR.

## FIRST TERM.

|                      |
|----------------------|
| Grammar . . . . .5   |
| Algebra . . . . .5   |
| History . . . . .5   |
| Drawing . . . . .2   |
| Elocution . . . . .3 |

## SECOND TERM.

|                                 |
|---------------------------------|
| Rhetoric . . . . .5             |
| Algebra and Geometry . . . . .5 |
| Physics . . . . .5              |
| Drawing . . . . .2              |
| Elocution . . . . .3            |

## THIRD TERM.

|                       |
|-----------------------|
| Literature . . . . .5 |
| Geometry . . . . .5   |
| Physics . . . . .5    |
| Drawing . . . . .2    |
| Elocution . . . . .3  |

*Afternoon Work.*

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| Penmanship . . . . .5  | Penmanship . . . . .5  | Penmanship . . . . .5  |
| Typewriting . . . . .5 | Typewriting . . . . .5 | Typewriting . . . . .5 |

## SECOND YEAR.

|                                           |                        |                                       |
|-------------------------------------------|------------------------|---------------------------------------|
| Stenography . . . . .5                    | Stenography . . . . .5 | Stenography . . . . .5                |
| Rhetoric . . . . .2                       | Rhetoric . . . . .5    | Rhetoric . . . . .2                   |
| Commercial Calculations . . . . .5        | Political Economy .3   | Hist. of Commerce .5                  |
| Civil Gov'nment and Constitutional Law .5 | Business Customs .2    | Commercial Law .5                     |
|                                           |                        | Auditing and Experting of Accounts .2 |

*Afternoon Work.*

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects, from 2 to 4 daily.

# GENERAL SCIENCE COURSE.

This course is believed to be especially adapted to the requirements of those preparing to study medicine or pharmacy, or to take technological training abroad. It will also offer excellent preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

## STUDIES IN GENERAL SCIENCE COURSE.

### FRESHMAN YEAR.

| FIRST TERM.           | SECOND TERM.                          | THIRD TERM.            |
|-----------------------|---------------------------------------|------------------------|
| Grammar . . . . . 5   | Rhetoric . . . . . 5                  | Literature . . . . . 5 |
| Algebra . . . . . 5   | Algebra and Geom-<br>etry . . . . . 5 | Geometry . . . . . 5   |
| History . . . . . 5   | Physics . . . . . 5                   | Physics . . . . . 5    |
| Drawing . . . . . 2   | Drawing . . . . . 2                   | Drawing . . . . . 2    |
| Elocution . . . . . 3 | Elocution . . . . . 3                 | Elocution . . . . . 3  |

#### *Afternoon Work.*

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Shopwork . . . . . 10 | Shopwork . . . . . 10 | Shopwork . . . . . 10 |
|-----------------------|-----------------------|-----------------------|

### SOPHOMORE YEAR.

|                                          |                                         |                                         |
|------------------------------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 3                    | Chemistry . . . . . 3                   | Chemistry . . . . . 3                   |
| Rhetoric . . . . . 2                     | Rhetoric . . . . . 5                    | Rhetoric . . . . . 2                    |
| Solid Geometry and<br>Higher Algebra . 5 | Trigonometry . . . 5                    | Analytical Geometry 5                   |
| Civil Government . 5                     | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 5 |

#### *Afternoon Work.*

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Chemistry . . . . . 6 | Chemistry . . . . . 6 | Chemistry . . . . . 6 |
|                       | Anatomy . . . . . 2   | Anatomy . . . . . 2   |

### JUNIOR YEAR.

|                        |                       |                       |
|------------------------|-----------------------|-----------------------|
| Literature . . . . . 5 | Agr'l Chemistry . . 3 | Agr'l Chemistry . . 3 |
| German . . . . . 3     | German . . . . . 3    | German . . . . . 3    |
| Calculus . . . . . 3   | Calculus . . . . . 5  | Botany . . . . . 5    |
| Psychology . . . . . 5 | Zoology . . . . . 5   | Zoology . . . . . 2   |
|                        |                       | Surveying . . . . . 2 |

#### *Afternoon Work.*

|                        |                      |                       |
|------------------------|----------------------|-----------------------|
| Bacteriology . . . . 6 | Mineralogy . . . . 6 | Zoology . . . . . 4   |
|                        | Zoology . . . . . 2  | Surveying . . . . . 4 |

## SENIOR YEAR.

|                        |                        |                      |
|------------------------|------------------------|----------------------|
| Heat and Electricity 5 | Political Economy . 3  | Literature . . . . 5 |
| Physiological Botany 3 | German . . . . . 3     | German . . . . . 3   |
| German . . . . . 3     | Organic Chemistry 5    | Organic Chemistry 5  |
| Horticulture . . . . 3 | Geology . . . . . 3    | Geology . . . . . 3  |
|                        |                        | Entomology . . . . 5 |
|                        | <i>Afternoon Work.</i> |                      |
| Physiological Botany 4 | Analytical Chemistry 6 | Entomology or . . 4  |
| Physics . . . . . 4    |                        | Geology . . . . . 4  |



## DEPARTMENTS OF INSTRUCTION.

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In the previous pages the order in which studies are pursued has been stated. Under the present title a somewhat detailed account will be given of the topics embraced in the several departments of instruction.

### AGRICULTURE.

I. RURAL ENGINEERING. The spring term of the junior year in the long course, and the corresponding part of the second year of the short course, are given to the various topics embraced in the general subject of rural engineering. The work covers in a general way the following topics :

1. *History, Drainage and Irrigation:* History of Agriculture, showing the successive steps by which the art has attained its present position; farm drainage, its practical effects; land needing drainage, and the different problems involved in laying out and putting in a system of drains; practical questions relating to irrigation; road making; and the selection, arrangement and management of a farm with reference to special systems to be pursued. PROF. FOSTER.

2. *Buildings, Fences and Machinery:* How to build cheap, substantial farm cottages, barns, stables, and pens; location and interior arrangement of farm buildings; development, care and use of farm implements and machinery; the mechanical principles involved in their construction and different adjustments affecting draught; fences and gates, their necessity, cost, kinds and construction; wood for gates and fences, time to cut, conditions favorable to decay and how to prolong durability; discussion of Utah state fence laws. ASSISTANT PROF. MERRILL.

II. STOCK FEEDING. A portion of the senior year is devoted to a study of the principles underlying the profitable feeding of farm animals. The composition and requirements of animal bodies, the chemical composition of foods necessary to supply these wants, the general laws of animal nutrition and the chemical action and values of the different kinds of food are discussed. The German Standard Rations are given thorough study, special work being done in compounding Utah foods. The student calculates the nutritive ratios, showing in what proportions the several foods may be used to make properly balanced rations for the different purposes of feeding, without the loss of more than a small percentage of any of the nutrients. A consideration of the proper foods for each class of animals, whether fed for labor, growth, milk, or meat production, is made prominent. The progress and results of the feeding experiments at the various Agricultural Experiment Stations are also carefully reviewed and discussed. PROF. FOSTER.

III. AGRONOMY. During the spring term of the senior year the following sub-divisions of this subject are taken up:

1. *Soils*: Their origin, composition, physical and chemical properties, classification, amelioration, and relation to climate; the general management of different soils and sub-soils with their relation to successful crop production.

2. *Manures*: General principles relating to the use of manures; natural and artificial manures; the sources and composition, differences in character, and the value of liquid and solid manures of different animals for different purposes; handling and preservation of natural manures; application of manures to different soils and for various crops; reclamation of alkali soils and worn out soils; preservation of original soil fertility.

3. *Farm Crops*: Their history, uses, composition and adaptability to climate; the cultivation, harvesting and preservation of different crops; the principles of rotation; the system of rotation best suited to this state, taking into consideration the distribution of labor, the production of man-

ure, and the extermination of weeds; summer fallow; the management of meadows and pastures and the best kinds of tame grasses for the State as shown by experiments at the Station and in other parts of the State; tillage as a means of conserving soil moisture. PROF. FOSTER.

#### IV. ANIMAL INDUSTRY.

1. *Breeds of Live Stock*: This includes the history and description of the different breeds of stock found on the farm, their origin and development into the specialized animals of to-day; the effect of climate and management on the animals, and their adaptability to various localities and purposes.

2. *Breeding of Live Stock*: This deals with the law of reproduction, heredity, reversion, cross-breeding, in-breeding, variation, selection, period of gestation, pedigree, etc.

3. *Management of Live Stock* includes a practical application of the principles of breeding, with a full description of the methods of caring for the different classes of live stock from birth till final disposition.

4. *Judging of Live Stock or Animal Exterior* aims to put in practice the knowledge gained in the class room; the students from exterior points tell the relative values of the animals for special purposes, and as far as possible give reasons for the decisions rendered. PROF. LINFIELD.

V. DAIRY HUSBANDRY. Dairying, as taught, deals principally with milk, its care and manufacture both in the factory and dairy. The farm problem of milk production is discussed under Animal Industry.

1. *Milk*: The elaboration, composition and fermentation of milk; the testing of milk, with a description of the methods used in paying for milk by test and in determining the worth of milk. A brief outline is also given of the fermentation of milk, or bacteriology as applied to milk and dairy products.

2. *Buttermaking*: The different methods of creaming milk and getting the best results, are described; the hand-

ling and ripening of the cream, churning, salting, working, packing and marketing the butter.

3. *Cheesemaking*: Cheddar cheesemaking is described; the making of a uniform product and dealing with practical difficulties are fully illustrated; a brief description is also given of the manufacture of other kinds of cheese, particularly of such kinds as may be made in a home dairy.

4. *Factories*: Factory organization; the building, equipment and management of factories are fully treated.

5. *Practical Dairying*: The college dairy is equipped with the best modern apparatus for practical dairy work, and from 1,300 to 3,000 pounds of milk are handled daily; factory and farm dairy methods are illustrated, and the student becomes familiar with all phases of dairy work by actual practice in the dairy, the aim being to familiarize him with the best methods of practice as discussed in the class room. PROF. LINFIELD.

VI. IRRIGATION ENGINEERING is intended to include the mechanical principles of draining and irrigating farm lands; it occupies five hours weekly for about four weeks in the second term of the senior year of the long course, or of the second year of the short course. PROF. SWENDSEN.

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## BIOLOGY.

PROFESSOR LANGTON.

I. ANATOMY AND PHYSIOLOGY. Lectures and recitations are given on human and comparative anatomy, illustrated by models, anatomical preparations, diagrams and dissections. The lecture course is supplemented, both in the winter and spring terms, by laboratory work, consisting of dissections of small animals; the study of osteology and a consideration of the elements of histology are also undertaken.

II. GENERAL BIOLOGY. The course of lectures on general biology and the accompanying laboratory work cover the usual range of topics. The difference between living and dead matter is reviewed, and such subjects as protoplasm, cells, tissues and organs are considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life are taken for illustration and for examination in the laboratory.

III. ZOOLOGY. A comparative review is given of the various functions concerned in animal life and their adaptability to the environments of the different classes of animals. The classification of the animal kingdom, the distribution of animals according to place and time, their present location and their primeval forms are considered.

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## BOTANY.

PROFESSOR HEDRICK.

I. STRUCTURAL BOTANY. Work in structural botany is required of the sophomores in the Agricultural Course, and of juniors in the General Science, Domestic Arts, and Commercial Courses. The text book used is Gray's *Lessons in Botany*. The aim is to help students to become familiar with the higher plants, the terms used in describing them, and their classification. Students are provided with microscopes and dissecting instruments for laboratory work, but must furnish their own collecting and mounting outfits. Fifty mounted and named plants are required. The work is given five hours a week in the third term.

II. PHYSIOLOGICAL BOTANY. Juniors in the Agricultural Course and seniors in the General Science and Domestic Arts Courses spend three hours a week in recitation and four hours a week in the laboratory during the first term in Physiological Botany. Plant anatomy, and the



functions, growth and nutrition of plant organs are studied. Bessey's *Essentials in Botany* is used as a text book. All laboratory equipment and materials are furnished.

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## CHEMISTRY.

PROFESSOR WIDTSOE AND MR. STEWART.

I. ELEMENTARY CHEMISTRY. This is a study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions, and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take the course in elementary practical chemistry.

II. ELEMENTARY PRACTICAL CHEMISTRY. This course supplements the preceding course and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other; their reactions are verified, and the facts and theories of the lecture room are tested by experiments.

III. QUALITATIVE ANALYSIS. This course runs parallel with, and supplements the descriptive study of the metals and their compounds. Under the direction of the instructor in chemistry the students apply with their own hands the re-agents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view. Laboratory work occupies six hours a week for thirty weeks.

IV. QUANTITATIVE ANALYSIS. In this course the student is given practice in the typical methods of proximate and ultimate quantitative chemical analysis. After the

necessary introductory practice samples of waters, soils, ores, agricultural products, and foods, are analyzed and reported upon. The work of the Experiment Station chemical laboratory furnishes a good opportunity for the study of methods of analysis. The course consists largely of laboratory work.

V. ORGANIC CHEMISTRY. This course is planned for students who intend to fit themselves for professional work in chemistry. It consists of a brief survey of the reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives, together with a full discussion of the nature and influence of molecular structure. In the laboratory the student makes a number of organic preparations, which in their formation involve the methods of oxidation, reduction, substitution and synthesis.

VI. AGRICULTURAL CHEMISTRY. This is a series of lectures treating of the chemical problems of agriculture; composition of plants; sources of plant food; chemistry of animal nutrition, soils and dairy products. In the laboratory are taught the methods of agricultural analysis.

NOTE.—Each student taking a laboratory course in chemistry is required to deposit \$2.50 for the first term and \$1.25 for each succeeding term, to pay for chemicals, and to cover breakage.

VII. CHEMISTRY OF FOODS. This is a laboratory course, and aims to make the students familiar with the constituents of the common foods. By the aid of the microscope and chemical re-agents, flour, bread, meats, peas, beans, spices, milk, and other dairy products, and various vegetables, are separated into their components, and each component subjected to special tests. The study has an important bearing on the science of nutrition.

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## COMMERCIAL BRANCHES.

PROFESSOR FARIS.

I. PRACTICAL BOOKKEEPING. The student obtains some capital, rents a place of business, deposits his money

in the bank, transacts all kinds of business, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, and bills of sale. He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, coal, lumber, furniture, drug, jobbing, commission and shipping, brokerage, real estate, and for joint stock companies and corporations. Various business relations are entered into in the formation of agencies, partnerships, joint stock companies and corporations.

II. HISTORY OF COMMERCE. This work is done by recitations and lectures. The student makes a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He notes the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; he learns how markets are created and controlled; how waterways and railways afford a ready means of transportation and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics are gathered showing the magnitude of the world's production. Practical commercial problems of the day are discussed in class.

III. COMMERCIAL LAW. This embraces a study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contracts, including agency, partnership, corporation, bills, notes and checks, purchase and sale of personal property, guarantee or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, telegraphic communication, patents, copyright, trade

marks, real estate conveyances, and the business and legal forms that are used to carry on trade. PRESIDENT TANNER.

IV. COMMERCIAL CALCULATIONS. This consists of a drill in percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all the problems that the average business man is called upon to solve. Short methods are studied, and practical devices presented.

V. POLITICAL ECONOMY. The economic laws of trade, the general principles of Political Economy technically applied to commerce, and general business methods, are carefully examined. PRESIDENT TANNER.

VI. AUDITING AND EXPERTING OF ACCOUNTS. The duties, qualifications and requirements of expert accountants are carefully studied. Books suitable for different kinds of business with the most approved ruling, special columns etc., are discussed. Much practical work is given in opening and closing sets of books used in various business enterprises.

VII. BUSINESS CUSTOMS. The fundamental principles of bookkeeping are here applied according to modern ideas of business, with its complex and exacting requirements. The subjects of banking, securities, exporting and importing, railroading, business correspondence and every day business transactions, are carefully examined from a practical standpoint. Blanks and business forms of many kinds are placed in the hands of students for discussion and reproduction.

VIII. PENMANSHIP. A plain legible style of writing, with a rapid movement, is taught daily throughout the freshman year. It is required of commercial students; elective to others. SEC. WILSON.

IX. STENOGRAPHY. This is required of second year students in the Short Commercial Course, and of junior students in the four years' Commercial Course. Graham's system of Standard Phonography is taught. The class

is given one hour's instruction daily throughout the year.  
MR. DRYDEN.

Text Book: Graham's *Handbook*.

X. TYPEWRITING is required of all first year students in both commercial courses. Three different kinds of machines are used, the Remington, the Caligraph, and the Smith Premier. An hour a day is given to typewriting throughout the year. MR. DRYDEN.

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## DOMESTIC ARTS.

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### I. HOUSEHOLD ECONOMY.

MRS. COTEY.

EXPLANATION. The course for young women gives the same general training in English, German, Mathematics and Science that is given in the other courses, together with special studies adapted to woman's work.

1. LAUNDRYING occupies the fall term and consists of practical work alternating with lectures. The practice includes plain white washing and removing stains, clear starching, best methods of doing up fine mull, of ironing shirts, cuffs and collars, washing flannels, and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used, and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, bluing and starch, are discussed in their scientific and practical relations to laundry work.

2. FRUIT WORK includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chem-



ical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human sytem; the causes of fruit fermentation, and a sudy of antiseptics.

3. COOKING LECTURES treat of marketing and the selection of food; general rules of measuring and mixing; best methods of baking and boiling; deep and shallow frying; the general chemistry of cooking; carving and serving of food.

4. COOKING PRACTICE includes all kinds of plain and some fancy cooking, covering in a general way all the subjects with which a housekeeper in moderate circumstances needs to be familiar. Demonstration lessons are given at various times throughout the term on subjects difficult of treatment in the general practice. A three-course lunch is served daily during the winter term. Members of the class take turns in presiding as hostess at the table, carving and serving plates and looking after the needs of the guests; they also take turns in waiting upon the table. The confidence and skill thus acquired are invaluable to them.

5. SCIENCE OF NUTRITION is a study of foods, their chemical composition, characteristics, digestibility; the way in which they nourish the body; the best foods to be given in certain diseases; the best food for young children; effect of age, climate and occupation on amount and kind of food required. In connection with these lectures, about forty lessons are given in preparing food for the sick.

6. HYGIENE treats of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instructions especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick.

7. HOUSEHOLD MANAGEMENT consists of lectures on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; duties of

mistress and servants; entertainment of guests, and many other subjects of interest to the home-maker.

8. AESTHETICS is the science of taste and beauty. The course includes talks on fine china, pictures, furniture, decorations for the home, harmony of colors, taste in dress, and kindred subjects.

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## II. SEWING.

MISS BOWEN.

EXPLANATION. Besides the general advantages derived from industrial education, the object of this branch is to give a practical training in the sewing which every household requires. Neatness of work is insisted upon. The student provides material and makes her own garments.

1. **PIECE SEWING.** Practice is given first in the various hand stitches used in muslin and woolen goods; overhanging, running, hemming, hemstitching, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, French hem on damask, etc.

2. **DRESSMAKING.** At least two muslin garments are made. A gown is cut out, basted, and entirely made, by the student.

3. **DESIGNING, CUTTING AND FITTING.** Instruction is given by talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to make drawings of the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

4. **FANCY WORK.** This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn-work, jeweled embroidery, and modern lace-making.

## **DRAWING.**

PROFESSOR ROBINSON.

1. **FREEHAND DRAWING.** This consists in lessons and practice, perspective sketching from casts, and simple studies in light and shadow. It is required of all freshmen, the exercises coming three times a week during the year. It is made to include industrial design.

The junior students in the Domestic Arts Course have special training in designing and elementary art, suitable for young women.

2. **MECHANICAL DRAWING** is taught during the entire junior year. Students in this class are required to make working drawings, both detail and assembly, from measurement. Simple designs illustrating the principles taught in the class in mechanism form a prominent feature. Neatness and accuracy of execution determine largely the standard of marking.

3. **DESCRIPTIVE GEOMETRY** is confined to the representation of problems, and the solution of problems relating to geometrical magnitudes in space. It is made to cover orthographic projections and development; projections of plain and solid figures; curved surfaces and tangent planes; shades and shadows; construction of maps; solutions of problems relating to geometrical magnitudes.

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## **ELOCUTION AND READING.**

The object of this department is to make good readers and fluent speakers. Particular attention is paid to orthoepy and the definitions of words.

1. **READING.** This study is required of all sub-freshmen in daily recitation. The best dictionaries are in use, and students have constant practical drills in orthography, phonetic spelling, marking and defining words, and

articulation. The principle aim in the work however is to develop easy, natural readers who will be able to express the thought of the author in a clear and impressive manner. The work of the past year consisted of a study of *Julius Caesar*, *the Merchant of Venice* and miscellaneous readings.

2. ELOCUTION. The work in this study, taken by the freshmen, is a continuation of that done in the sub-freshmen year, also practical work in recitation and impersonation. Each student is expected to learn and present a recitation to the class once each month or as often as the number in the class or division will allow.

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## ENGINEERING.

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### I. CIVIL ENGINEERING.

PROF. SWENDSEN.

1. HYDRAULICS This includes a discussion of the fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water-wheels and pumping engines. Winter and Spring terms.

2. IRRIGATION SYSTEMS. Includes the location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; windmills, artesian wells, etc. Winter term.

3. ELEMENTARY SURVEYING embraces the adjustment and care of instruments, and a treatment of the general methods of farm, city, railway, topographical and hydrographic surveying. The practical work in the field and drawing room will receive particular attention. Fall and Spring terms.

4. HIGHER SURVEYING includes a treatment of triangulation systems, construction of stations, measurement of base lines, determination of the meridian, and the general application of precise methods in field and drawing room practice. Fall term.

5. ROADS AND PAVEMENTS. Country roads are discussed along with highways, their location, construction and maintenance; the paving of city streets and sidewalks; the materials used and the mode of construction.

6. RAILROAD STRUCTURES will treat of the parts of the road requiring special designs, such as masonry, retaining walls, trestles, tunnels, watch towers, water supply, culverts, etc. Winter term.

7. MUNICIPAL ENGINEERING will deal with sources and methods of city water supply, problems and plans of sewerage, systems and methods of sewerage disposal, and questions of rapid transit and light. Spring term.

8. THESIS. This may consist of some original engineering design, a paper on some branch of civil engineering, or a discussion of some past achievement in the profession. It is expected to be a somewhat exhaustive treatment of the problem considered.

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## II. MECHANICAL ENGINEERING.

PROFESSOR JENSON.

1. ELEMENTS OF MECHANISM. This includes a consideration of the various forms of motion and its production; link motions and their modification as used in machinery; cam and wiper outlines; wheel trains and aggregate motions; design and construction of gear teeth; mechanism of special machinery. This subject deals with the purely geometrical relations of machinery, rather than with the form and design of articulating parts.



2. METALLURGY OF IRON AND STEEL. This embraces a study of the principal iron ores and their reduction according to modern methods, and the processes employed in the preparation of the iron into the various forms used for general construction purposes.

3. STEAM ENGINEERING. This begins with a study of the various forms of valve gears now in common use, which is followed by the study of the various forms of engines; the principles of thermodynamics according to the mechanical theory of heat and its application to the steam and other vapor engines; boilers and boiler design and construction; also methods of testing steam engines and steam boilers. A careful study is made of such data as have been secured from reliable tests in lieu of making actual tests.

4. APPLIED MECHANICS. A general discussion is given of the relation of forces and their effects in the production of motion; the derivation and application of formulæ, based upon the strength of materials as determined from actual experiment on full sized pieces, and used in determining the size of parts to be used in all engineering structures; the constructive qualities of the various woods and metals used in engineering practice. Much stress is laid upon this subject as being the chief corner stone in the foundation of an engineering profession.

5. DYNAMICS OF MACHINES. The general effects of the inertia of the moving parts of machines are discussed.

6. POWER MEASUREMENT AND TRANSMISSION. This is a study of theory of friction and suitable coefficients for use with various materials and kinds of joints; friction brakes and dynamometers; lubricators and their uses; transference of power by means of rigid contact, rope and belt driving, compressed fluids, and electrical transmission. Power absorbed in driving the various machines in the shop.

7. MACHINE DESIGN. In machine design each student is required to make a certain number of designs carrying out the principles of applied mechanics and dynamics of

machines in all calculations. Boilers, parts of engines, pulley and gear shafts, and hangers, form suitable examples for this work. The class work consists of lectures and drawing.

8. **THESIS.** In general a graduating thesis in this course should consist of the execution of an original design with a descriptive dissertation, or a discussion of some current engineering problem, or the result of some original research, experimental or theoretical.

For a description of a course in hydraulics, municipal and irrigation engineering, materials of engineering, applied electricity, see "Civil Engineering."

For a description of courses in mechanical drawing and descriptive geometry, see "Drawing."

For shopwork, see "Mechanic Arts."

For other courses, see "Physics and Mathematics."

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## ENGLISH AND GERMAN.

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### *1. ENGLISH LANGUAGE AND LITERATURE.*

PROFESSOR MACEWAN.

1. **ENGLISH GRAMMAR.** The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, special attention being given to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors. This work occupies the fall term.

2. **ELEMENTARY RHETORIC.** This includes the principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narration. The nar-

rative poems from the textbook in literature, with the last class, *British Masterpieces* and *The Iliad* furnish matter for reproduction and study in versification. This work occupies the winter term.

3. **ADVANCED RHETORIC.** Instead of more advanced work in the principles of style, the rules of description, narration, exposition and argumentation are studied; and to illustrate and enforce these, some masterpieces in each department are critically examined. Speeches of Burke and Webster furnish suitable material for the study of argument. Frequent oral and written exercises make the work entirely practical; during the last term debates, written and oral, are had on questions of general interest. Each student presents numerous written exercises. The work goes through the sophomore year, twice a week the first and third terms, and five times a week the second term.

4. **LITERATURE.** The first work in literature follows the elementary rhetoric, occupying the third term of the freshman year. It is a critical study of the short, complete classics—essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts have been read:

Shakespeare's *Merchant of Venice*; Bacon's *Essays*; Milton's *L'Allegro*, *Il Penseroso*, *Hymn*, and *Lycidas*; Addison's *Sir Roger De Coverly*; Pope's *Rape of the Lock*; Gray's *Elegy in a Country Churchyard*; Goldsmith's *Deserted Village*, and *Traveller*; Burn's *Cotter's Saturday Night*, and some other poems; Wordsworth's *Ode on Immortality*, and narratives from *The Excursion*; Irving's *Sketch-book*; Tennyson's *Ulysses*, *Locksley Hall*, *Enoch Arden*; Dickens's *Christmas Carols*; selections from Emerson, Lowell, Holmes, Longfellow, and Hawthorne; the selections in Swinton's *Master-*

*pieces*; Pancoast's *Representative Literature*; Painter's *Introduction*; Syle's *From Milton to Tennyson*, and *British Masterpieces*.

5. HISTORY OF LITERATURE. The second course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses, much of the study being reported in essays. This is the work of juniors and seniors for the first term.

6. LITERATURE: MASTERPIECES. The last term of the senior year is given to the study of longer masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One week is given to each piece selected. The work of the class-room is largely a report of students, either oral or written, on what they have done by themselves. The following texts, changing somewhat from year to year, have constituted the course:

Shakespeare, two great tragedies, *Hamlet*, *Macbeth*, *Lear*, *Othello*; Webster, *Reply to Hayne*; Burke, *Conciliation with American Colonies*; Macaulay, *Essay on Milton* and *Addison*; Milton's and Carlyle's *Essay on Johnson*; Milton, *Paradise Lost*, I. and II.; *Samson Agonistes*; Carlyle, *Essay on Burns*, *Hero as Prophet*; Tennyson, *Princess*, or selected poems; Motley, *Peter the Great*, or Southey, *Nelson*; George Eliot, *Silas Marner*; Wordsworth, *Selected Poems*; Byron, *Childe Harold*; Goldsmith, *Vicar of Wakefield*; De Quincy, *Revolt of the Tartars*; Defoe, *Journal of the Plague*; Addison, *Spectator*; Browning, *Blot in the Scutcheon*, etc., or select poems.

## II. GERMAN.

ASSISTANT PROFESSOR ROBINSON.

This is the only foreign language taught in the institution, and is in four courses, three hours a week, during both the junior and senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the *Foynes-Meissner Grammar* and *Reading-book*, students are given such scientific reading material as will best equip them for using works of reference and the publications of scientific institutions and societies; or such selections from classic German literature as are adapted to awaken an interest and stimulate further reading. Dippold's *Scientific German Reader*; *Wilhelm Tell*, *Nathan der Weise*, *Egmont*, *Hermann und Dorothea*, *Reisebilder*, *Ekkehart*, *Peter Schlemihl*, *Das Kalte Herz*, *Soll und Haben*.

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## ENTOMOLOGY.

PROFESSOR HEDRICK.

The work in entomology is required of juniors in the Agricultural Course and of seniors in the General Science and Domestic Arts Courses. It consists of recitations five hours, and laboratory work four hours a week during the third term. Comstock's *Manual* is used as the text-book and guide for laboratory work. The students are expected



to acquire a general knowledge of the structure and classification of insects, especially the common insect pests. Insecticides and methods of applying them are given some consideration.

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## **GEOLOGY AND MINERALOGY.**

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I. MINERALOGY AND ASSAYING. A systematic study is made of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and determinative mineralogy; and in connection with the former, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

II. GEOLOGY AND LITHOLOGY. A course is given in general and economic geology in which particular attention is given to dynamical and structural geology. Along with the occurrence of rocks, their mineralogical composition is also studied. The instruction is based on a text-book, but supplementary lectures are given. Weekly excursions give practice in geological field work and material for reports.

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## **HISTORY.**

PROFESSOR THOMAS.

The chief objects of this study are the fixing of the principal great historical events in the memory, the training of the reason and the historic sense, and the cultivation of the taste for historical reading. Outlines are made and memorized, and questions are suggested that require research, and stimulate independent thought. While original sources cannot well be examined, considerable reference reading is required. For this purpose, the College library is better equipped in the department of historical literature, than in any other. A general textbook is used; but no slavish following of any one book is expected. Time is

taken to compare conflicting statements of fact, and different interpretations. All available sources of information are used. The work extends through the first term of the freshman year, five times a week.

I. GRECIAN HISTORY. The first period of study is given to Grecian history, some attention being paid to Oriental nations, especially to those events which influenced in a noticeable manner subsequent European nations. Most of the time is occupied with a study of the conflicting cities and States of Greece, their advancement in oratory, literature and the fine arts.

II. ROMAN HISTORY. Attention is then given to the history of Rome—her rise, rapid extension, wonderful vigor, the extension of her power, her fall and final extinction, the survival of her better qualities, and the gradual development of the nations of modern Europe.

III. ENGLISH HISTORY. In succession attention is given to the history of England as the great exponent of human liberty, the rise and extension of her institutions, the settlement of her American Colonies, and the growth of her ideas and civilization on American soil.

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## HORTICULTURE.

PROFESSOR HEDRICK.

This subject occupies five hours a week during the second term of the junior year of the long Agricultural Course, and during the same terms of the second year of the short course. Three hours a week are also devoted to this subject during the first term of the senior year in the Agricultural, Domestic Arts and General Science Courses.

The work is as follows:

I. PROPAGATION AND PRUNING. The first term is occupied with plant propagation; a discussion of the principles underlying it and of special methods, as seeding, budding

and the various methods of grafting. Some time is also devoted to a discussion of the general principles on which the practice of pruning is based. During this term two hours each week are devoted to pruning, grafting, making cuttings and other work in the propagating house.

II. **POMOLOGY.** In the second term the subject of pomology proper is taken up, including the choice of fruit lands, their cultivation and the maintenance of fertility; the planting of orchards and other fruit plantations; choice of trees and selection of varieties; the diseases of plants and the principles and practice of spraying.

III. **FLORICULTURE.** This is taught during the spring term of the junior year in the Domestic Arts Course. It deals with the propagation and care of house plants, the flower garden and the planting and care of the home grounds. So far as possible the work in the class-room is supplemented by actual practice in the green house and on the college grounds.

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## **MATHEMATICS.**

PROFESSORS SNOW AND LANGTON.

I. **ALGEBRA.** A thorough drill in the elements of algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions, is given all freshmen every day during the first term.

II. **PLAIN GEOMETRY.** Oral and written recitations in the elements of plane geometry are required of freshmen half the time during the winter and spring terms.

III. **HIGHER ALGEBRA** embraces a study of quadratic equations; simple and indeterminate equations, inequalities, theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems, during the fall term of the sophomore year.

IV. SOLID GEOMETRY involves recitations on the relation of lines and planes in space; area of surfaces; volume of solids; and the solution of practical problems. It comes in the first term sophomore year.

V. TRIGONOMETRY embraces a study of the use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulæ. Second term sophomore year.

VI. SURVEYING occupies eleven weeks, two recitations a week, and four hours field practice a week. The solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying; and the use of the level in establishing grades,—are the most important features of the work.

VII. ANALYTICAL GEOMETRY embraces the reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

VIII. CALCULUS. 1. *Differential*. Development of the fundamental principles and formulæ of the differential calculus; applications to various problems in indeterminate forms, tangents and normals to plane curves, and maxima and minima, etc.

2. *Integral*. Elementary forms of integration, development of formulæ; applications in determining length of curves, areas, center of gravity, moment of inertia, volume of solids, etc. Fall, winter and spring terms.

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## MECHANIC ARTS.

PROFESSOR JENSON.

### I. TECHNICAL INSTRUCTION.

Instruction is given during the regular shop hours on the various operations throughout the course, and includes the preparation of steel and iron for the mechanic arts; the felling and seasoning of timber; selection of materials, etc

## II. SHOP PRACTICE.

1. BENCH WORK IN WOOD includes exercises in planing, sawing, chiseling, rabbeting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and the general use of carpenters' tools.

2. WOOD TURNING covers all the principles of straight turning, face plate, and chuck work.

3. IRON FORGING embraces drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flat-ters, fullers, swages, etc. These principles are applied in the making of tools for use in the shop. Other articles are made, such as andirons and ornamental gates, if time permits.

4. STEEL FORGING embraces the forging and tempering of punches, cold chisels, drills, lathe and planer tools, springs, and the welding of steel to iron; annealing, case hardening, and coloring are also taught.

5. CABINET MAKING is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood carving added.

6. PATTERN MAKING embraces a number of exercises in the construction of simple and built up patterns and core boxes.

7. VISE WORK, in iron, embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of key seats, riveting, brazing and soldering.

8. MACHINE WORK embraces straight, taper and eccentric turning, thread cutting, face plate, and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail, and T grooves, and key seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.



**METEOROLOGY.**

ASSISTANT PROFESSOR DRYDEN.

This is an optional course for junior and senior students, and includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather Service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

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**MILITARY SCIENCE AND TACTICS.**

LIEUTENANT DUNNING.

This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two 3-inch rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and students are required to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, the uniform prescribed by the College must be worn.

I. INFANTRY. This includes all the movements described in the drill regulations of the U. S. Army, from gymnastic instruction in the setting-up exercises, the school of the soldier, and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and

also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition; instruction in signaling with flag and in military telegraphy.

II. ARTILLERY. This embraces drill in the manual of the piece, and target practice when practicable.

III. THEORETICAL INSTRUCTION. During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military science. Daily from 11:30 a. m. to 12:20 p. m. Required of all students except juniors and seniors.

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## VOCAL MUSIC.

MRS. GOODWIN.

Details as to time of lessons and conditions will be announced at the commencement of each term.

That music is a great, perhaps the greatest, refiner of human nature is incontestible. Cruelty and brutality, generally the accompaniment of unmelodious races, become rare as the musical feeling grows, and music is a predominant characteristic of refined and gentle natures. Undoubtedly, therefore, music may be made a potent factor in civilization, because the tenderest feelings of men cultured or uncultured, are awakened by it. This result may be obtained more easily when the heart is fully enlisted and the faculties of the mind are fully exercised, thus making music one of the noblest factors in the education of the soul. It is intended to foster the taste for music among the students as fully as is consistent with the pursuit of their studies in other directions.

## PHILOSOPHY.

PSYCHOLOGY is a study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized, and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

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## PHYSICAL CULTURE.

The chief aim in this department is not so much to develop muscle as to relieve the mental strain. Special attention, however, is given to any desiring a course for development or to overcome physical defects.

The exercises consist of military, fancy and calisthenic marching; Swedish and free gymnastics; light and heavy work with apparatus: Indian clubs, dumb-bells, wands, pulley weights, rings, parallel and horizontal bars, ladder, ropes, horse, etc.

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## PHYSICS.

PROFESSORS JENSON AND SNOW.

I. ELEMENTARY PHYSICS. This is an introductory science course; in which the important laws of natural philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems, bearing on the subject in hand, are solved in and out of the class room.

II. HEAT AND ELECTRICITY. This course has been introduced especially for engineering students. The law of conservation of energy is made the fundamental principle, and the relations and effects of the various qualities are ex-

plained upon this basis. The mechanical equivalent of these forms of energy and the processes of transformation from one form to another, and problems involving this principle, are made prominent features.

III. ELEMENTARY MECHANICS. This involves an elementary consideration of the composition and resolution of forces, the measurement of forces, dynamics, hydrostatics, and pneumatics, supplemented with numerous problems selected from probable occurrences in the construction of buildings and machinery.

IV. PHYSICAL LABORATORY work includes measurements in heat and electricity.

V. ADVANCED PHYSICS. Heat, steam engine, steam boilers, electricity, elements of mechanism, and other courses in higher and applied physics are described under Civil and Mechanical Engineering.

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## POLITICAL SCIENCE.

PROFESSOR TANNER.

I. CIVIL GOVERNMENT AND COMMERCIAL LAW. A study is made of the township, county, municipal, state, and national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The recent interpretations of the national constitution are also considered. Cooley's *Constitutional Law*.

II. POLITICAL ECONOMY. Three recitations a week from Mac Vane's *Political Economy* are supplemented by illustrative statistics, explanations and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the consideration of the economic problems that now engage the highest thought of the country.

**VETERINARY SCIENCE.**

ASSISTANT PROFESSOR MERRILL.

This subject embraces a series of lectures, which are delivered five times a week throughout the second and third terms in both courses in agriculture. No attempt is made to turn out veterinarians in any sense of the word, but simply to give the student of agriculture such an elementary knowledge of veterinary medicine as will enable him to treat some of the commoner and simpler forms of disease, to avoid dangerous exposure of the animals under his care, and to recognize the importance of strict attention to the hygiene of his farm animals. The following is a short synopsis of the work:

I. ANATOMY OF THE HORSE. This subject is studied in the following order during the winter term—Osseous system, muscular system, digestive system, respiratory system, urinary system, vascular system, nervous system, organs of generation.

II. MATERIA MEDICA. During the spring term general pathology, therapeutics and surgery receive attention. During this term also one or more horses are dissected.

III. SPECIAL PATHOLOGY and therapeutics (contagious and infectious disease) and principles of horse shoeing are discussed.



# MANUAL TRAINING DEPARTMENT.

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## MECHANIC ARTS COURSE.

By means of a recent appropriation by the Legislature of Utah, the College now offers a three years' Course in Mechanic Arts. The object of the course is to afford students adequate training in the use of hand and machine tools, and to fit them for industrial pursuits as proficient carpenters, smiths, machinists, or founders. The work will be made thorough and systematic. In the assignment of exercises their application to practical constructions is constantly borne in mind. Proficient workmen are engaged on the teaching staff, and instruction is given by illustrative processes rather than by verbal explanation. Accuracy and neatness are insisted upon in the making of even the most trivial articles, thus inducing both dexterous manipulation and mental discipline.

The arrangement of the course is such that all students entering it are required to take a considerable amount of woodworking and some forging and machine work; and opportunity is afforded to specialize in any of the four branches after the first year. Considerable attention is given to hand tool work, which in all cases precedes machine tool work. Free hand drawing and mechanical drawing are taught throughout the course and are made prominent features.

Besides the strictly technical work, the course affords two recitation hours a day in the classes of English, history, elementary mathematics, physics, and other general studies.

At the completion of the course the student will be given a certificate according to the rules of the College.

The work in foundry, electric welding and brazing will not be given this year.

**EQUIPMENT.** The shops are already supplied with the following apparatus and machinery.

*For Wood Working.* Twenty-four carpenter's benches with the usual sets of tools, seven wood turning or pattern maker's lathes, one jig-saw, one wood-planer, one band-saw, one universal saw-table.

*For Iron Work.* Twenty-four power blast forges with anvils and tool accompaniments, seven vise-benches, two 17-inch engine lathes, one speed lathe, one Brainard universal milling machine, one large vertical drill press, one large planer.

*General:* Emery wheels, grinding stones, special tools, etc.

## STUDIES IN MECHANIC ARTS MANUAL TRAINING COURSE.

### FIRST YEAR.

#### FIRST TERM.

|                                               |    |
|-----------------------------------------------|----|
| Grammar . . . . .                             | 5  |
| Arithmetic . . . . .                          | 5  |
| Freehand Drawing .                            | 3  |
| Shop work . . . . .                           | 20 |
| Sawing, Ripping, Planing, Mortising, Joining. |    |

#### SECOND TERM.

|                                                      |    |
|------------------------------------------------------|----|
| Grammar . . . . .                                    | 5  |
| Arithmetic . . . . .                                 | 5  |
| Freehand Drawing .                                   | 3  |
| Shop work . . . . .                                  | 20 |
| Care and adjustment of tools, Paneling, Sashes, etc. |    |

#### THIRD TERM.

|                                   |    |
|-----------------------------------|----|
| Grammar and Composition . . . . . | 5  |
| Arithmetic . . . . .              | 5  |
| Freehand Drawing .                | 3  |
| Shop work . . . . .               | 20 |
| Dovetailing and Cabinet making.   |    |

### SECOND YEAR.

|                                                        |    |
|--------------------------------------------------------|----|
| Geography . . . . .                                    | 5  |
| General History . . .                                  | 5  |
| Mechanical Drawing                                     | 3  |
| Shop work . . . . .                                    | 20 |
| 1. General Forging, Welding Iron, Iron Tools . . . . . | 20 |
| or                                                     |    |
| 2. Wood Turning, Machine Work in Wood . . . . .        | 20 |

|                                                      |    |
|------------------------------------------------------|----|
| Reading . . . . .                                    | 5  |
| Penmanship . . . . .                                 | 2  |
| Mechanical Drawing                                   | 3  |
| Shop work . . . . .                                  | 20 |
| 1. Iron and Steel Welding, Tempering, Tool making    | 10 |
| 2. General Forging in Iron, Pattern making . . . . . | 10 |

|                                                                |    |
|----------------------------------------------------------------|----|
| U. S. History . . . . .                                        | 5  |
| Penmanship . . . . .                                           | 2  |
| Reading . . . . .                                              | 2  |
| Mechanical Drawing                                             | 3  |
| Shop work . . . . .                                            | 20 |
| 1. Screw Cutting, Plumbing, Chipping, Filing and Hand Fitting. |    |
| or                                                             |    |
| 2. Design and Construction of a Wooden Frame House.            |    |

### THIRD YEAR.

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| Algebra . . . . . 5    | Algebra and Geom-      | Geometry . . . . . 5   |
| Grammar . . . . . 5    | etry . . . . . 5       | Literature . . . . . 5 |
| Elective . . . . . 5   | Rhetoric . . . . . 5   | Elective . . . . . 5   |
| Shop work . . . . . 20 | Physics (Ag. Sh.       | Shop work . . . . . 20 |
| 1. Machine Shops 20    | course) . . . . . 5    | 1. Construction and    |
| or                     | Shop work . . . . . 20 | Design.                |
| 2. Inside Work of      | 1. Machine Shops 20    | Each student in        |
| House . . . . . 20     | or                     | this term will make    |
| or                     | 2. Stair Building . 20 | some elaborate article |
| 3. Horse Shoeing,      | or                     | of furniture or ma-    |
| Foundry . . . . . 20   | 3. Brazing, Electric   | chinery in the branch  |
|                        | Welding, Special       | in which he has spe-   |
|                        | Mouldings . . . . . 20 | cialized. The work     |
|                        |                        | must be original in    |
|                        |                        | selection and design,  |
|                        |                        | subject to approval of |
|                        |                        | department staff.      |

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### DOMESTIC ARTS COURSE.

1. HOUSEHOLD ECONOMY. This course of two years is offered for the benefit of those young women who do not wish to take the studies of the regular college course but desire to devote more time to the subjects of especial interest to women. Such other studies as the student is qualified to pursue may, with the consent of the faculty, be substituted for those offered in this course.

2. FRUIT WORK includes canning fruit by various methods, steaming, sealing with wax and cotton batting; various methods of making jelly from green as well as from ripe fruits; methods of covering jelly; making pickles, spices, fruits, ketchups and meat relishes; making preserves, jams and candied fruits; preparing fruit juices, cordials and syrups.

3. MEATS, SOUPS, ETC. In this the student receives instruction in selecting different cuts of meats and in the methods of cooking best adapted to them. Practice is given in roasting, braizing, broiling, in stews and pot roasts; in preparing fowls for cooking and in making dressings; in

boning, larding and skewering; in making croquettes, scallops, etc.

Instruction is given in preparing soup stocks, in making cream soups, vegetable soups and purees.

Students are taught to prepare sauces suited to different kinds of meats and to make various meat pies, dumplings for stews and noodles for soups.

4. **YEAST AND BREAD MAKING** includes the making of various kinds of yeast, salt rising, wet and dry yeast; white and graham bread, corn bread, Boston brown bread; many varieties of rolls and buns.

This work includes instruction in making baking powder and in making a great variety of the breakfast breads in which it is used; biscuits, muffins, gems, Johnny cake, pancakes and waffles.

5. **PASTRY COOKING** includes practice in a variety of layer and loaf cakes, sponges, cream puffs, cookies, jumbles and fancy cakes, plain pastry, puff paste, tarts, patties, etc. The student is also given practice in a great variety of baked, boiled and steamed puddings; custards, blanc-manges, whips, creams, jellies, etc. Instruction is given in laying tables for dinner and lunch parties, and in waiting on tables. A few lessons are given in making taffy and sugar candies with French cream fondant. Instruction is given in cooking vegetables and serving dinners during both winter terms.

6. **DAIRYING.** This subject will be treated mainly from the home dairy standpoint, though opportunity will be given for more extended practice to any who desire it. The aim will be to dwell particularly upon the practical phase of the subject, both in the lectures and in the work in the dairy rooms. A careful study will be made of milk, its production and composition, and the care that must necessarily be bestowed upon it as an article of food, or if it is to be manufactured into butter or cheese.

Students will have ample opportunity to get an under-

standing of the art of butter-making. Milk will be creamed by different methods, and the product will be under the care of the students till it is made up ready for market.

In cheese-making an understanding will be given of the best factory methods, but more attention will be bestowed upon the manufacturing of small cheese, such as could be made up in a few hours at the home.

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## II. SEWING.

The object of this course is to qualify for a trade, and to lay a foundation whereby young women may be enabled to maintain themselves.

1. HAND STITCHES. The work begins with hand sewing which consists of practice in the various stitches used in muslin and woolen goods; running, hemming, overhanding, overcasting, felling, gathering and stroking gathers, button-holes, gusset, patching and darning, backstitch, basting, bands, bias cutting, blanket stitch, slip stitch, herring bone, chain and cross stitch and feather stitch, French hem, French seam, etc.

2. CARE OF MACHINES AND MACHINE SEWING. Regular practice is given in the care of the machine, and its mechanism is illustrated. Practice is given in running, hemming, tucking, ruffling, puffing, binding, etc.

3. CUTTING AND FITTING. The student learns to draft from measurements patterns of basques, skirts, sleeves, princess gowns, French coats, capes, circulars, etc.

4. PLAIN DRESSMAKING. Plain gowns are drafted, cut and basted, fitted, draped, trimmed and entirely finished by the student.

5. DRESSMAKING, DESIGNING AND FINISHING. Instruction is given by talks on grace in design and costume, and harmony of color. Special attention is given to draping, finishing, and the designing of costumes.



6. FANCY WORK. This consists of hemstitching, drawn work, Kensington embroidery, Roman cut work, Spanish laid work, jeweled embroidery, Bulgarian embroidery and modern lace making.

## MANUAL TRAINING IN DOMESTIC ARTS.

### FIRST YEAR.

#### FIRST TERM.

|                     |    |
|---------------------|----|
| Grammar . . . . .   | 5  |
| Reading . . . . .   | 5  |
| Drawing . . . . .   | 6  |
| Hand Stitches . . . | 10 |
| Laundrying . . . .  | 4  |

#### SECOND TERM.

|                      |    |
|----------------------|----|
| Grammar . . . . .    | 5  |
| U. S. History . . .  | 5  |
| Cooking Lectures .   | 5  |
| Care of Machines and |    |
| Machine Sewing       | 10 |
| Cooking of Meats,    |    |
| Soups, Sauces and    |    |
| Vegetables . . . .   | 5  |

#### THIRD TERM.

|                     |    |
|---------------------|----|
| Grammar . . . . .   | 5  |
| U. S. History . . . | 5  |
| Drawing . . . . .   | 4  |
| Cutting and Fitting | 10 |
| Yeast and Bread     |    |
| Making, Plain       |    |
| Pastry Cooking . .  | 6  |

### SECOND YEAR.

|                      |    |
|----------------------|----|
| Arithmetic . . . . . | 5  |
| Geography . . . . .  | 5  |
| Plain Dress Making   | 10 |
| Fruit Work . . . .   | 10 |

|                      |    |
|----------------------|----|
| Arithmetic . . . . . | 5  |
| Elocution . . . . .  | 5  |
| Hygiene and House-   |    |
| hold Sanitation . .  | 5  |
| Designing, Draping   |    |
| and Finishing . . .  | 10 |
| Pastry Cooking, Sal- |    |
| ads, Ices etc . . .  | 5  |

|                    |    |
|--------------------|----|
| Arithmetic and Al- |    |
| gebra . . . . .    | 5  |
| Grammar . . . . .  | 5  |
| Dairying . . . . . | 10 |
| Fancy Work . . . . | 10 |

## PREPARATORY DEPARTMENT.

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Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some, the schools are quite primitive. As a consequence many young men and women, who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the State, and now feel that they are entitled to a share of the intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are, do not provide instruction generally adapted to the age and wants of the class referred to. It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies :

### SUB-FRESHMAN YEAR.

| FIRST TERM.            | SECOND TERM.            | THIRD TERM.             |
|------------------------|-------------------------|-------------------------|
| Grammar . . . . 5      | Grammar . . . . 5       | Grammar and Com-        |
| Arithmetic . . . . 5   | Arithmetic . . . . 5    | position . . . . 5      |
| Geography . . . . 5    | U. S. History . . . . 5 | Arithmetic and Al-      |
| Reading . . . . 2      | Reading . . . . 2       | gebra . . . . 5         |
|                        |                         | U. S. History . . . . 5 |
|                        |                         | Reading and Decla-      |
|                        |                         | mation . . . . 3        |
| <i>Afternoon Work.</i> |                         |                         |
| Penmanship . . . . 5   | Penmanship . . . . 5    | Penmanship . . . . 5    |
| Drawing . . . . 5      | Drawing . . . . 5       | Drawing . . . . 5       |

## WINTER COURSES.

I. FARMERS' COURSE. Beginning in January, a course of special lectures on agricultural subjects is given for the benefit of any farmer that may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and occupying one term till the end of March. A special circular describing this course will be mailed upon application.

II. WOMEN'S COURSE. A special course in sewing, household management, cooking, and such literary or scientific studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term. Special circulars describing this course will be issued.

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## EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject on examination. In all four year courses, an average standing of not less than 75 per cent., with no grade less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month may be dropped from the class.

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## ADMISSION TO ADVANCED STANDING.

Students of this College, or of any similar institution, who are desirous of being admitted to advanced standing must present themselves for examination in the required subjects on the Monday and Tuesday of the week in which the College opens in the fall term.

## GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four year courses. A certificate is granted for the completion of the Short Courses in commercial branches, or domestic arts.

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## COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the college course; for a single term \$2.50. The privileges of the library and museum are free to students. In the chemical laboratory, work shops and cooking rooms, students are charged for the cost of the materials actually used by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificate of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

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## BOARDING HOUSE.

The Boarding House will be used for lady students exclusively, and will be under the discipline of the College. Students will be responsible to the president for their conduct, and will not be allowed out evenings without the consent of the matron, who will make a monthly report to the president of each lady's conduct and absences in the evenings after regulation hours.

Two students usually occupy one room, the cost to each for room, electric light, and board being from \$2.25 to \$2.50 a week. Students at the above prices furnish bedding and carpet. Furnished rooms may be had for \$2.75 a week.

**LIBRARY.**

MRS. GOODWIN, Librarian.

The general library contains about five thousand volumes and several thousand pamphlets. The subjects covered are general literature, including poetry and fiction, travel, history, biography and criticism; political economy, sociology, metaphysics, general science, and such of the special sciences as are included in the courses of the several departments. The Professor of English Literature, whose private library contains about two thousand eight hundred volumes, allows to advanced students in his own classes, the privilege of the use of his library under his direction. Some of the other professors also accord access to their private libraries as occasion may require. The library and reading room are open to the students and to the general public every college day throughout the year.

The list of periodicals placed in the reading room upon subscription is as follows:

*LITERARY MAGAZINES.*

|                       |                            |
|-----------------------|----------------------------|
| Atlantic Monthly.     | Literature.                |
| Book News.            | Literary Digest.           |
| Century.              | Literary World.            |
| Cosmopolitan.         | McClure's Magazine.        |
| Critic.               | Munsey's Magazine.         |
| Dial.                 | Nation.                    |
| Edinburgh Review.     | North American Review.     |
| Education.            | Outlook.                   |
| Educational Review.   | Review of Reviews, Am. Ed. |
| Forum.                | Scribner's Magazine.       |
| Gentlewoman.          | Student's Journal.         |
| Harper's Bazar.       | The Argosy.                |
| Harper's Monthly.     | University Chronicle.      |
| Harper's Weekly.      | University Magazine.       |
| Journal of Education. | Youth's Companion.         |
| Ladies' Home Journal. |                            |



*SCIENTIFIC AND TECHNICAL MAGAZINES.*

|                                                     |                                                                     |
|-----------------------------------------------------|---------------------------------------------------------------------|
| American Machinist.                                 | Library Magazine.                                                   |
| American Magazine of Civics.                        | Machinery.                                                          |
| American Journal of Politics.                       | Modern Art.                                                         |
| American Naturalist.                                | Music.                                                              |
| Architectural Record.                               | Nature.                                                             |
| Art Education.                                      | Penman's Journal.                                                   |
| Art Journal.                                        | Political Science Quarterly.                                        |
| Delineator.                                         | Popular Science Monthly.                                            |
| Dietetic Magazine.                                  | Public Libraries.                                                   |
| Electrician.                                        | Sanitarian.                                                         |
| Engineering Magazine.                               | School Review.                                                      |
| Etude.                                              | Science.                                                            |
| Good Housekeeping.                                  | Scientific American — Build-<br>ing Edition.                        |
| Home Art.                                           | Scientific American — Sup-<br>plement.                              |
| Housekeeper.                                        | Studies in Historical and Po-<br>litical Science.                   |
| Johns - Hopkins' University<br>Studies.             | Table Talk.                                                         |
| Journal of American Folk<br>Lore.                   | Transactions of American<br>Society of Mechanical En-<br>gineering. |
| Journal of Association of<br>Engineering Societies. | Werner's Voice Magazine.                                            |
| Journal of Veterinary Ar-<br>chives.                |                                                                     |
| Le Bon Temps.                                       |                                                                     |

*AGRICULTURAL MAGAZINES.*

|                       |                          |
|-----------------------|--------------------------|
| Agricultural Science. | Farm Poultry.            |
| American Bee Journal. | Journal of Horticulture. |
| American Gardening.   | Pacific Rural Press.     |
| Breeder's Gazette.    | Poultry World.           |
| Country Gentleman.    |                          |

*NEWSPAPEPERS AND MISCELLANEOUS  
PERIODICALS.*

The folowing is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to college students and to the general public. The list comprises nearly all the best agricultorall papers of the

country, and in connection with the college list of periodicals, constitutes an excellent current library of agriculture and related sciences.

- |                             |                              |
|-----------------------------|------------------------------|
| Agricultural Epitomist.     | Farmer's Call.               |
| Agriculturalist.            | Farmer's Magazine.           |
| American Agriculturist,     | Farming, Toronto, Ontario,   |
| Middle and Western          | Canada.                      |
| editions.                   | Farm News.                   |
| American Creamery.          | Farm and Orchard.            |
| American Cultivator.        | Farmers' Review.             |
| American Fertilizer.        | Farm, Stock and Home.        |
| American Gardening.         | Field and Farm.              |
| American Grange Bulletin.   | Gardening.                   |
| American Horticulturist.    | Grange Visitor.              |
| American Poultry Journal.   | Hoard's Dairyman.            |
| American Sheep Breeder and  | Holstein Friesian Register.  |
| Wool Grower.                | Hospodar.                    |
| American Swineherd.         | Illustrated London News.     |
| Baltimore Weekly Sun.       | Indiana Farmer.              |
| California Cultivator and   | Industrial American.         |
| Poultry Keeper.             | Industrialist.               |
| California Fruit Grower.    | Irrigation Age.              |
| Chronique Agricole, Lau-    | Journal of Board of Agricul- |
| sanne, Switzerland.         | ture, London, England.       |
| Clover Leaf.                | Journal of Agriculture.      |
| Colman's Rural World.       | Jersey Bulletin.             |
| Commercial Agriculture.     | Kansas Farmer.               |
| Connecticut Farmer.         | Live Stock Indicator.        |
| Creamery Journal.           | Live Stock Report.           |
| Cultivator.                 | L'Industrie Laitiere, Paris, |
| Daily Public Ledger, Phila- | France.                      |
| delphia.                    | Louisiana Planter.           |
| Dairy The, London, Eng-     | Milch Zeitung, Bremen, Ger-  |
| land.                       | many.                        |
| Dairy World.                | Mirror and Farmer.           |
| Dakota Farmer.              | Montana Fruit Grower.        |
| Elgin Dairy Report.         | Nebraska Farmer.             |
| Farmers' Advocate.          | Neue Zeitschrift fur Ruben-  |
| Farm, Field and Fireside.   | zucker - Industrie, Berlin,  |
| Farm and Fireside.          | Germany.                     |
| Farmers' Guide.             | New England Farmer.          |
| Farm and Home.              | New England Florist.         |
| Farmer's Home.              | Ohio Farmer.                 |
| Farmer's Journal.           | Orange Judd Farmer.          |

|                                                             |                                               |
|-------------------------------------------------------------|-----------------------------------------------|
| Pacific Coast Dairyman.                                     | Stockman and Farmer.                          |
| Pacific Rural Press.                                        | Successful Farmer.                            |
| Practical Farmer.                                           | Sugar Beet.                                   |
| Prairie Farmer.                                             | Texas Farm and Ranch.                         |
| Reliable Poultry Journal.                                   | Ulster Agriculturalist, Belfast, Ireland.     |
| Revue Internationale des Falsifications, Amsterdam, Holland | Wallace's Farmer.                             |
| Rural Canadian, Toronto, Ontario, Canada.                   | Weekly Call, San Francisco.                   |
| Rural Life.                                                 | Weekly Tribune, New York.                     |
| Rural Northwest.                                            | Western Agriculturist and Live Stock Journal. |
| Scottish Farmer, Glasgow, Scotland.                         | Western Rural.                                |
| Southern Cultivator.                                        | Wisconsin Agriculturist.                      |
|                                                             | Wool, Mutton and Pork.                        |
|                                                             | World, thrice a week.                         |

The following Utah newspapers are also sent by the courtesy of the publishers.

|                                            |                               |
|--------------------------------------------|-------------------------------|
| Advocate, Price.                           | Clipper, Farmington.          |
| Advocate, Richfield.                       | Democrat, Eureka.             |
| American, Spanish Fork.                    | Deseret News, Salt Lake City. |
| Banner, Lehi.                              | Enterprise, Ephraim.          |
| Beobachter, Salt Lake City.                | Enquirer, Provo.              |
| Blade, Deseret.                            | Express, Vernal.              |
| Box Elder News, Brigham.                   | Globe, Payson.                |
| Bugler, Brigham.                           | Herald, Salt Lake City.       |
| Bulletin, Bingham.                         | Improvement Era.              |
| Independent, Sandy.                        | Record, Park City.            |
| Independent, Springville.                  | Republic, Nephi.              |
| Inter - Mountain Advocate, Salt Lake City. | Review, Ogden.                |
| Item, American Fork.                       | Round-up, Randolph.           |
| Journal, Logan.                            | Sentinel, Manti.              |
| Mercury, Mercur.                           | Southern Censor, Richfield.   |
| Messenger, Manti.                          | Standard, Ogden.              |
| Miner, Tintic.                             | Times, Coalville.             |
| Nation, Logan.                             | Transcript, Tooele.           |
| News, Beaver.                              | Tribune, Salt Lake City.      |
| Press, Ogden.                              | Utah Patriot, Park City.      |
| Progress, Fillmore.                        | Utonian, Provo.               |
| Pyramid, Mount Pleasant.                   | Wasatch Wave, Heber.          |
| Record, Cedar City.                        | Woman's Exponent.             |
|                                            | Young Woman's Journal.        |

**MUSEUM.**

\_\_\_\_\_, Curator.

The Museum contains a considerable number of specimens illustrative of Geology and Palæontology, Vetebrate and Invertebrate Zoology, Mineralogy; also about four thousand five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grains representing the produce of Utah and other States. A small collection of Indian and Polynesian products and curiosities has been made.

*Donations to the Museum will be highly appreciated.*

The following contributions have been made to the Museum and are hereby thankfully acknowledged:

Mr. J. W. Dunn, Frisco, Utah.—Cerargyrite and gypsum from Horn Silver Mine, Frisco, Utah.

Prof. E. S. Richman, Fullerton, California.—Petrified wood, Obsidian formation, Castle Geyser formations, Fountain Geyser formations, Hot Springs formations; all from Yellow Stone Park.

Mr. T. C. Craigan, Logan.—Petrified wood.

Mr. Lewis Carver, Plain City.—Asbestos and petrified wood.

Mr. F. M. Staker, Rockport, Utah.—Mineralogical specimens.

Mr. T. R. Welsh, Croydon, Utah.—Ammonites from Somersetshire, England.

Mr. A. G. Watson.—Crystalized lead from Keynote Mine, Bingham Canyon.

Mr. Charles Blyth, Salt Lake City.—Ute Indian spear heads and peace pipe from Uintah Reservation.

Mr. A. L. Green, Menan, Idaho.—Collection of shells, coral, seaweeds, curios, cloth and mats woven by the natives. All from the Samoan Islands.

- Mr. S. P. Morgan, Logan.—Specimen plant of peanuts grown in southern Idaho, near Franklin.
- Mr. Theodore Martineau, Colonia, Juarez, Mexico.—Collection of ancient pottery from Mexico.
- Prof. J. T. Miller, Nephi, Utah.—Collection of Coins of various nations.
- Mr. Alma Green, Menan Idaho.—Shells, coral moss, and photographs from Samoan Islands.
- Mr. J. R. Thompson, Richmond.—Lime incrustations, Soda Springs, Idaho.
- Mr. Samuel Littledale, Smithfield.—Curio.
- Mr. Henry Bassett, Salt Lake City.—Indian arrow head.
- Mr. Christian Fonnbeck, Newton District.—An anatomical monstrosity.
- Mr. H. C. Hansen, Logan.—Specimens of curly ash and curly maple from Virginia.
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### WEATHER FORECASTS.

The College receives the telegraphic weather forecasts from the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are displayed from the flagstaff of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the percentage of verification of the forecasts of the Pacific Coast division was 83.7. For Utah, which is part of this division, the percentage was likewise 83.7. Great value is placed upon these forecasts by the Department of Agriculture at Washington. From their timely warnings much property is saved both on sea and land. The Department considers that \$10,000,000 is a con-



servative estimate of the value of property saved in 1895. Doubtless some means will be devised in the near future whereby these forecasts will be made more accessible to the farming community. An explanation of the flag signals is shown on the third page of the cover.

# CATALOGUE OF STUDENTS.

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## *POST GRADUATES.*

Foster, Clara .....Logan.  
Hart, Hermoine .....Bloomington, Idaho.  
Jenson, Charles A.....Hyrum.  
Lundberg, Victoria.....Providence.

## *SENIORS.*

Atkinson, Frederick Henry .....Dayton.  
Beers, Anna .....Logan.  
Bullen, Mabel .....Richmond.  
Harris, Joel J. ....Ogden.  
Irvine, Alexander Ray .....Logan.

## *JUNIORS.*

Baker, John Simon .....Mendon.  
Beers, William Duke .....Logan.  
Gordon, Robert John.....Meadowville.  
Hansen, Niels M.....Logan.  
Peterson, Joseph Hogan .....Huntsville.  
Peterson, William.....Bloomington, Idaho.  
Simmonds, William Walter .....Trenton.  
Stover, Arthur Petterson .....Logan.

## *SOPHOMORES.*

Bithell, Joseph J.....Salt Lake City.  
Bullen, Ethel .....Richmond.  
Christianson, John Frederick.....Ephraim.

|                                 |                     |
|---------------------------------|---------------------|
| Cooper, Blanche .....           | McCammon, Idaho.    |
| Curtis, Harry Benson.....       | Blackfoot, Idaho.   |
| Davis, Arthur James .....       | Salmon City, Idaho. |
| Eliason, Peter William .....    | Moroni.             |
| Flemming, Burton Percival ..... | Logan.              |
| Hogensen, Christian.....        | Newton.             |
| Johanson, Oscar .....           | Idaho Falls, Idaho. |
| Jensen, Joseph William.....     | Newton.             |
| Maughan, Elizabeth Collins..... | Peterboro.          |
| Merrill, Fred Whitmore .....    | Richmond.           |
| Miner, Idalah.....              | Logan.              |
| Nelson, William .....           | Newton.             |
| Nelson, Ethel.....              | Manti.              |
| Ralph, Fred Charles .....       | Hyrum.              |
| Smith, Parley Franklin.....     | Lewiston.           |
| Stevens, David.....             | Malad, Idaho.       |
| Stone, Ellen Anne .....         | Fullerton, Cal.     |
| Taylor, George Francis.....     | Plain City.         |

### *FRESHMEN.*

|                                   |                      |
|-----------------------------------|----------------------|
| Anderson, Gustave Edwin .....     | Lehi.                |
| Anderson, John Amos.....          | Rexburg, Idaho,      |
| Baldwin, Nathaniel.....           | Fillmore.            |
| Bench, Ella Maria.....            | Manti.               |
| Boley, Warren Chipman .....       | American Fork.       |
| Borlase, John Albert .....        | Bingham Junction.    |
| Brown, Charles Franklin.....      | Loa.                 |
| Bullen, Blanche .....             | Richmond.            |
| Christensen, Mary Ida.....        | Hyrum.               |
| Christensen, Amelia Mary Ann..... | Soda Springs, Idaho. |
| Cowley, David .....               | Logan.               |
| Crane, Bert.....                  | Soda Springs, Idaho. |
| Crawford, Bertha .....            | Manti.               |
| Crawford, Catherine Ann .....     | Manti.               |
| Crawford, Stanley.....            | Manti.               |
| Evans, Esther .....               | Malad, Idaho.        |
| Foster, Elizabeth Curtis.....     | Logan.               |

|                                |                       |
|--------------------------------|-----------------------|
| Fisher, Minnie.....            | Oxford, Idaho.        |
| Fisher, Stella Josephine ..... | Oxford, Idaho.        |
| Howell, William Maughan .....  | Wellsville.           |
| Hodgman, Bruce William.....    | Hailey, Idaho.        |
| Hart, Emily Rosena.....        | Bloomington, Idaho.   |
| Hendricks, John William .....  | Richmond.             |
| Hendricks, William Warren..... | Richmond.             |
| Hillman, William Henry.....    | Oxford, Idaho.        |
| Hines, Frank Thomas .....      | Salt Lake City.       |
| Irvine, Robert Leo .....       | Logan.                |
| Jensen, John Henry .....       | St. Charles, Idaho.   |
| Jones, Franklin Morgan .....   | Malad, Idaho.         |
| Kirkbride, James William.....  | Smithfield.           |
| Larson, David .....            | Collinston.           |
| Larson, John William.....      | Collinston.           |
| Larson, Nellie Marie .....     | Logan.                |
| Madson, Antoinette .....       | Manti.                |
| McAlister, Maima.....          | Logan.                |
| McDonald, Mary Elizabeth ..... | Salmon City, Idaho.   |
| Merrill, Charles William ..... | Brigham.              |
| Miller, Elizabeth.....         | Alma, Wyoming.        |
| Morgan, George Lester.....     | Paris, Idaho.         |
| Morgan, John Richard.....      | Willard.              |
| Morgan, Samuel Perry.....      | Franklin.             |
| Neeley, Parley Hughes .....    | Kamas.                |
| Nelson, Charles Walter.....    | Richmond.             |
| Nelson, Edna Louie.....        | Fish Haven, Idaho.    |
| Olsen, Aaron Brigham .....     | Logan.                |
| Ormsby, Mabel Jane .....       | Logan.                |
| Perry, Mary Almeda .....       | Vernon.               |
| Peterson. Anna .....           | Bloomington, Idaho.   |
| Porter, Charles Walter .....   | Porterville.          |
| Porter, Moses Ensign .....     | Riverside.            |
| Porter, Tillie, Mrs.....       | Riverside.            |
| Pratt, Nettie .....            | Oxford, Idaho.        |
| Pugmire, Rich .....            | St. Charles, Idaho.   |
| Pulley, Edward Parley .....    | American Fork.        |
| Redford, John .....            | Beaver Canyon, Idaho. |

|                                |                        |
|--------------------------------|------------------------|
| Redford, Hyrum.....            | Beaver Canyon, Idaho.  |
| Rich, William Lafayette.....   | Paris Idaho.           |
| Rigby, Alma Liptrot .....      | Hooper.                |
| Saucier, Fred Erwin.....       | San Jose, California.  |
| Seegmiller, William West.....  | Upper Kanab.           |
| Skeen, Jedediah.....           | Plain City.            |
| Stewart, Robert .....          | Plain City.            |
| Stewart, Frank.....            | St. Charles, Idaho.    |
| Stover, Mattie Eva.....        | Logan.                 |
| Sullivan, Julia .....          | Grace, Idaho.          |
| Tanner, Arthur Leroy .....     | Logan.                 |
| Tenney, Levi Stewart .....     | Colonia, Diaz, Mexico. |
| Thatcher, Franklin Davis.....  | Logan.                 |
| Thomas, Burton Lewis .....     | Bloomington, Idaho.    |
| Thornock, Joseph Emanuel ..... | Bloomington, Idaho.    |
| Twelves, Murray .....          | Provo.                 |
| Warner, William David.....     | Uintah.                |
| Wheatley, John Gibbs .....     | Honeyville.            |
| Wheeler, Oliver Prentice ..... | Blackfoot, Idaho.      |
| Whitmore, John Wiley .....     | Nephi.                 |
| Young, Wilford Van Cott.....   | Salt Lake City.        |

### *SPECIALS.*

|                               |                        |
|-------------------------------|------------------------|
| Beveridge, William.....       | Alma, Wyoming.         |
| Bingham, William David .....  | Brigham City.          |
| Curtis, Mrs. Geo. W. ....     | Washington, Louisiana. |
| Davis, Emma.....              | Soda Springs, Idaho.   |
| Evans, David.....             | Anaconda, Montana.     |
| Fisher, George Howard .....   | Oxford, Idaho.         |
| Fisher, Laura Lewis, Mrs..... | Oxford, Idaho.         |
| Fjelsted, Estella .....       | Logan.                 |
| Gibson, Ella.....             | Smithfield.            |
| Greaves, John C. W.....       | Preston, Idaho.        |
| Hansen, Selma.....            | Smithfield.            |
| Hoff, Beatrice .....          | Georgetown, Idaho.     |
| Kimball, June Ethel.....      | Salt Lake City.        |
| Law, Joseph Paxton.....       | Paradise.              |



|                                |                         |
|--------------------------------|-------------------------|
| May, Marion.....               | Honeyville.             |
| Miner, Florence .....          | Logan.                  |
| Nebeker, Clara.....            | Laketown.               |
| Olsen, Frederic Christian..... | Preston.                |
| Petersen, Carry .....          | Ephraim.                |
| Rencher, Wm. David.....        | Springerville, Arizona. |
| Rainey, Jennie Bell . .....    | Richmond.               |
| Ream, Nora Ellen, Mrs.....     | Dingle, Idaho.          |
| Rice, Jennie .....             | Elna, Idaho.            |
| Rich, Libbie.....              | St. Charles.            |
| Robinson, Mary Elizabeth.....  | Farmington.             |
| Schaub, Karl Conrad.....       | Logan.                  |
| Scott, Catherine .....         | Oxford, Idaho.          |
| Tanner, Arthur Leary .....     | Logan.                  |
| Thomas, Maria, Mrs.....        | Logan.                  |
| Welker, Clara .....            | Bloomington, Idaho.     |
| West, Matey .....              | Pocatello, Idaho.       |

*DOMESTIC ARTS—MANUAL TRAINING.*

|                           |                     |
|---------------------------|---------------------|
| Beveridge, Ida.....       | Almy, Wyoming.      |
| Bunot, Myra .....         | Hennefer.           |
| Bush, Barbara Marie ..... | St. John.           |
| Cohn, Emma .....          | Oneida, Idaho.      |
| Davis, Grace.....         | Idaho Falls, Idaho. |
| Groesbeck, Abby.....      | Springville.        |
| Hendricks, Amy .....      | Richmond.           |
| Larson, Eliza.....        | Collinston.         |
| Larson, Victoria .....    | Collinston.         |
| Mattson, Amanda.....      | Logan.              |
| Nebeker, Naomi .....      | Lake Town.          |
| Nelson, Blanche .....     | Fish Haven, Idaho.  |
| Paine, Veanetta .....     | Georgetown, Idaho.  |
| Selk, Benia.....          | Dingle, Idaho.      |
| Thomas, Fenretta.....     | Smithfield.         |

*MECHANIC ARTS—MANUAL TRAINING.*

|                                |                  |
|--------------------------------|------------------|
| Anderson, Albert William ..... | Meadow.          |
| Anderson, Hyrum.....           | Bear River City. |

|                                 |                      |
|---------------------------------|----------------------|
| Anderson, John Edward .....     | Meadow.              |
| Andersen, Nils Peder.....       | Logan.               |
| Allred, Ernest .....            | Fairview.            |
| Allred, Myron .....             | Spring City.         |
| Allred, Samuel Willis.....      | Spring City.         |
| Arnett, William.....            | Boise, Idaho.        |
| Asplund, William Joel.....      | Fairview.            |
| Bacon, Delos .....              | West Jordan.         |
| Baker, Lyman .....              | Mendon.              |
| Barson, Denny Birdell.....      | Clarkston.           |
| Bell, Adelbert .....            | Logan.               |
| Bone, John Edwin .....          | Lehi.                |
| Brown, Carl Louis .....         | Scipio.              |
| Brown, James C.....             | Farmington.          |
| Brown, Joel Thomas .....        | Loa.                 |
| Brown, William .....            | Scipio.              |
| Bywater, James Alfred.....      | Brigham City.        |
| Call, William Wiley .....       | Castle Dale.         |
| Campbell, Jared Edward, Jr..... | Soda Springs, Idaho. |
| Cox, Roy B .....                | Fairview.            |
| Ferguson, John Thomas .....     | Meadow.              |
| Fowler, George .....            | Hennefer.            |
| Grundy, Marion.....             | Loa.                 |
| Grundy, William Jefferson ..... | Loa.                 |
| Hague, Jay Henry .....          | Cannon.              |
| Haguewood, Walter Marshal.....  | Salt Lake City.      |
| Hancock, George Arthur .....    | Downey.              |
| Haight, George Hector.....      | Farmington.          |
| Hansen, Herbert Erastus .....   | Fairview.            |
| Hansen, James Peter, Jr.....    | Spring City.         |
| Hansen, Joseph Henry .....      | Logan.               |
| Hansen, Tersy .....             | Bear River City.     |
| Heilesen, Neils Christian ..... | Glenwood.            |
| Heppler, John .....             | Glenwood.            |
| Jeffs, William Arthur.....      | Castle Dale.         |
| Jones, Edward Thomas .....      | Spanish Fork.        |
| Jones, Hyrum Erastus.....       | Clear Creek.         |

|                                  |                      |
|----------------------------------|----------------------|
| Kimball, Arthur .....            | Logan.               |
| Kimball, Richard Hopkins.....    | Logan.               |
| Lallis, Charles James.....       | Mendon.              |
| Lamb, James Hanmer .....         | Coalville.           |
| Larsen, Rasmus Christian.....    | Ephraim.             |
| Leigh, William Henry.....        | Cedar City.          |
| Lewis, Robert Thomas .....       | Logan.               |
| Linford, James Wesley .....      | St. Charles, Idaho.  |
| Linford, John Amasa.....         | Garden City.         |
| Madsen, Niels Peter.....         | Fountain Green.      |
| Magleby, Heber Lorenzo .....     | Monroe.              |
| Marble, Edward Horace.....       | Deweyville.          |
| McCulloch, Oliver .....          | Logan.               |
| Memmott, Edgar.....              | Scipio.              |
| Monson, Niels Ludwig .....       | Pleasant Grove.      |
| Myers, John Ephraim, Jr .....    | Panguitch.           |
| Naegle, James .....              | Toquerville.         |
| Nielson, Amos Lampe.....         | Honeyville.          |
| Nostrom, Martin.....             | Fairview.            |
| Olsen, Otto Hans .....           | Preston, Idaho.      |
| Peart, Joseph .....              | Richmond.            |
| Peterson, Carl Gustave .....     | Richmond.            |
| Robinson, Arnold.....            | Richmond.            |
| Scott, John William E.....       | Millville.           |
| Somsen, Frank.....               | Cokeville, Wyoming.  |
| Somsen, Henry Samuel.....        | Cokeville, Wyoming.  |
| Sweeten, George Gillis .....     | Mendon.              |
| Tanner, Henry Call .....         | Payson.              |
| Taylor, William.....             | Fairview.            |
| Terry, Charles Alphonzo, Jr..... | Fairview.            |
| Webb, Bernard Graham.....        | Lehi.                |
| Webb, Frederic Mark .....        | Lehi.                |
| Weekes, William Henry .....      | Lima, Idaho.         |
| Woodall, Demas Alexander.....    | Soda Springs, Idaho. |
| Woodall, James Franklin .....    | Soda Springs, Idaho. |

*SUB-FRESHMEN.*

|                                  |                             |
|----------------------------------|-----------------------------|
| Adams, George Henry              | .....Layton.                |
| Adams, Hugh Robert               | .....Logan.                 |
| Adams, Hyrum Rufus               | .....Layton.                |
| Adams, Isaac Joshua              | .....Layton.                |
| Adams, Lilly May                 | .....Layton.                |
| Adams, Rufus William             | .....Layton.                |
| Adams, Samuel Joseph             | .....Layton.                |
| Ames, Henry Baxter               | .....Wellsville.            |
| Anderson, Lovina                 | .....Hyrum.                 |
| Ashcraft, Rosa Dale              | .....Smithfield.            |
| Baker, Lettie                    | .....Mendon.                |
| Barber, Sarepta                  | .....Logan.                 |
| Barnard, Allen                   | .....Deer Lodge, Montana.   |
| Barrack, James Edward            | .....Salmon, Idaho.         |
| Barson, Ellen                    | .....Clarkston.             |
| Bassett, Charles Julius, Jr.     | .....Blackfoot, Idaho.      |
| Bennett, Calvin                  | .....Gentile Valley, Idaho. |
| Bennett, Frank David             | .....Idaho Falls, Idaho.    |
| Boley, Henry Chipman             | .....American Fork.         |
| Brewer, William                  | .....St. Charles, Idaho.    |
| Briggs, William Amos             | .....Lewisville, Idaho.     |
| Brooks, Harry Ray                | .....Butte, Montana.        |
| Bunderson, James                 | .....St. Charles, Idaho.    |
| Bunot, Henry                     | .....Hennefer.              |
| Bush, John Paul                  | .....Logan.                 |
| Bush, Richard Leroy              | .....St. John.              |
| Caine, John Thomas, Jr.          | .....Logan.                 |
| Candland, Lawrence               | .....Uinta.                 |
| Carlisle, Benjamin               | .....Logan.                 |
| Carlson, Ezra                    | .....Logan.                 |
| Chambers, Seth                   | .....Smithfield.            |
| Christensen, Annie               | .....Newton.                |
| Christopherson, Peter Williamson | .....Soda Springs, Idaho.   |
| Clark, Hazle                     | .....Manti.                 |
| Cohn, Max                        | .....Oneida, Idaho.         |
| Cole, Horatius                   | .....Willard.               |

|                                |                      |
|--------------------------------|----------------------|
| Collett, Burt.....             | Cokeville, Wyoming.  |
| Collins, Arthur .....          | Lago, Idaho.         |
| Collins, Henry Ferguson .....  | Lago, Idaho.         |
| Collins, Libbie Bess.....      | Lago, Idaho.         |
| Dahle, Albert H.....           | Logan.               |
| Davis, Daisy Dean .....        | Soda Springs, Idaho. |
| Davis, Hannah.....             | Idaho Falls, Idaho.  |
| Davis, Taylor.....             | Soda Springs, Idaho. |
| Dods, William.....             | Tooele.              |
| Driggs, Lois Lenore.....       | Salt Lake City.      |
| Egbert, Roy Samuel .....       | Logan.               |
| Erickson, James .....          | Ogden.               |
| Farnesworth, Charles.....      | Beaver.              |
| Farr, Aquilla .....            | Logan.               |
| Farrell, Lovine .....          | Logan.               |
| Farrell, Vendla .....          | Logan.               |
| Felt, Gustave .....            | Huntsville.          |
| Forgeon, Mildred Lou.....      | Cokeville, Wyoming.  |
| Fryar, Allen Porter .....      | Soda Springs, Idaho. |
| Fryar, Reed .....              | Soda Springs, Idaho. |
| George, Leslie .....           | Kanosh.              |
| Gibbs, Adell.....              | Lago, Idaho.         |
| Groesbeck, Abby .....          | Springville.         |
| Groesbeck, Marion.....         | Springville.         |
| Haight, Jacob.....             | Farmington.          |
| Hansen, Christian James.....   | Collinston.          |
| Hansen, Eugene Serverin.....   | Collinston.          |
| Hansen, Therese Anna .....     | Pocatello, Idaho.    |
| Hays, John William .....       | Dubois, Idaho.       |
| Henderson, David Williams..... | Oneida, Idaho.       |
| Henderson, Rebecca .....       | Oneida, Idaho.       |
| Hoff, Henry Herman.....        | Georgetown, Idaho.   |
| Hoggan, George Ralph .....     | Providence.          |
| Holdaway, David Dean.....      | Price.               |
| Holmgren, Albert.....          | Bear River City.     |
| Homer, William .....           | Trenton.             |
| Hougaard, John Andrew.....     | Manti.               |



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|--------------------------------|----------------------|
| Humpherys, Ray Rich.....       | Paris, Idaho.        |
| Hughes, Lewis, Jr.....         | Samaria, Idaho.      |
| Jacobson, Christian.....       | Cokeville, Wyoming.  |
| Jacobson, Julia.....           | Cokeville, Wyoming.  |
| James, Henry Robert.....       | Logan.               |
| Jensen, Lorenzo.....           | Bear River City.     |
| Jensen, Peter .....            | Logan.               |
| Jensen, Sarah Marett.....      | Newton.              |
| Judah, Thomas Nelson .....     | Lancaster, Kansas.   |
| Keith, Charles Forman .....    | Park City.           |
| Kirkbridge, Wesley .....       | Smithfield.          |
| Kirkendall, John Richmond..... | Robinson.            |
| Knox, Franklin Chase .....     | Logan.               |
| Kofford, James Arthur .....    | Porterville.         |
| Larsen Junius .....            | Logan.               |
| Larsen, Rasmus Christian.....  | Ephraim.             |
| Larson, Andrew .....           | Logan.               |
| Layton, Horace.....            | Layton.              |
| Lewis, Amelia .....            | Dingle, Idaho.       |
| Lewis, Edith.....              | Dingle, Idaho.       |
| Lessing, Bertha.....           | Minersville.         |
| Madsen, Spencer.....           | Manti.               |
| Marker, Andrew .....           | Bay Horse, Idaho.    |
| Maughan Alice Farnes .....     | Peterboro.           |
| Maughan, Brigham Morgan.....   | Wellsville.          |
| Merrill, Emma.....             | Richmond.            |
| Monson, James .....            | St. Charles, Idaho,  |
| Montrose, Ray.....             | Logan.               |
| Montrose, Sanie .....          | Logan.               |
| Morgan, Ernest Emmit.....      | Logan.               |
| Morgan, Pauline .....          | Willard.             |
| Morrison, Robert Ulysses ..... | Boise Valley, Idaho. |
| Munk, Albert .....             | Logan.               |
| Munk, Sophia .....             | Logan.               |
| McNeil, Charles .....          | Logan.               |
| Neibaur, Benjamin .....        | Kamas.               |
| Nelson, Aaron Alma .....       | St. George.          |

|                                  |                      |
|----------------------------------|----------------------|
| Nelson, Clara Jane .....         | Fish Haven, Idaho.   |
| Neilson, Peter Mads .....        | Pleasant Grove.      |
| Norton, George Asa.....          | Stewart, Montana.    |
| Norton, Janie Eliza .....        | Stewart, Montana.    |
| O'Brien, James Alma.....         | Layton.              |
| O'Brien, William Leroy .....     | Layton.              |
| Olsen, Rudolph.....              | Preston, Idaho.      |
| Osmond, Alice Maud.....          | Bloomington, Idaho.  |
| Owens, Richard Evan .....        | Malad, Idaho.        |
| Parker, Henry .....              | Wellsville.          |
| Parkinson, Eva Smart .....       | Franklin, Idaho.     |
| Paxton, Frank .....              | Kanosh.              |
| Peacock, Velora.....             | Manti.               |
| Perry, Hulda Orvilla .....       | Vernon.              |
| Peterson, Albert .....           | Bear River City.     |
| Peterson, Edward Larsen .....    | Peterboro.           |
| Peterson, Parley S.....          | Ephraim.             |
| Peterson, Sern Peter.....        | Newton.              |
| Peterson, Thyra Louise.....      | Hyrum.               |
| Porter, John Riley .....         | Porterville.         |
| Porter, Moses Ensign .....       | Riverside.           |
| Price, George.....               | Hooper.              |
| Prince, Joseph .....             | Harmony.             |
| Pugmire, Leroy Rich.....         | St. Charles, Idaho.  |
| Quayle, William Littlefair ..... | Logan.               |
| Reese, William .....             | Salt Lake City.      |
| Rencher, Rose .....              | Pine Valley.         |
| Richins, Parley Thomas .....     | Hennefer.            |
| Robinson, Alma .....             | Logan.               |
| Robinson, Eben Jay.....          | Farmington.          |
| Ronnow, Erastus.....             | Panacca, Nevada.     |
| Rose, Annie Beatrice.....        | Soda Springs, Idaho. |
| Rose, Nerva Leal .....           | Soda Springs, Idaho. |
| Rose, Walter Nowlin.....         | Soda Springs, Idaho. |
| Simister, Mary.....              | Coalville.           |
| Simonsen, John Peter .....       | Newton.              |
| Smith, Alexander .....           | Logan.               |

|                                    |                        |
|------------------------------------|------------------------|
| Smith, Charles Bailey .....        | Boise, Idaho.          |
| Smith, Joseph Alastor, Jr .....    | Providence.            |
| Smith, Rochester H.....            | Preston, Idaho.        |
| Smith, Thomas Rowland.....         | Logan.                 |
| Smith, Willis Alvin .....          | Lewiston.              |
| Smout, John .....                  | Slaterville.           |
| Somsen, Olive Emily.....           | Cokeville, Wyoming.    |
| Sorenson, George .....             | Scipio.                |
| Spande, Thomas .....               | Logan.                 |
| Spaulding, Lewis.....              | Hooper.                |
| Speireman, Connie .....            | Logan.                 |
| Standing, John Robert .....        | Collinston.            |
| Standing, Maud Eleanor.....        | Collinston.            |
| Stephens, Robert.....              | Hennefer.              |
| Stevens, Sybil .....               | Montpelier, Idaho.     |
| Stewart, James William.....        | Benjamin.              |
| Stoffers, Larona Henry.....        | Cokeville, Wyoming.    |
| Stromberg, David.....              | Huntsville.            |
| Sullivan, David .....              | Grace, Idaho.          |
| Sullivan, Helen.....               | Grace, Idaho.          |
| Sullivan, Minnie .....             | Grace, Idaho.          |
| Sutherland, James.....             | Provo.                 |
| Sweeten, Mary Amanda .....         | Mendon.                |
| Swindle, Heber .....               | Monroe.                |
| Talbot, Daniel Stephen.....        | Lewiston.              |
| Talbot, George Layton.....         | Layton.                |
| Talbot, Olive Leonie.....          | Lewiston.              |
| Taylor, Appollos Benjamin, Jr..... | Willard.               |
| Terry, Lula.....                   | Logan.                 |
| Thatcher, Henry Kitchen.....       | Gentile Valley, Idaho. |
| Thomas, Howard Lafayette.....      | Smithfield.            |
| Thomas, Thomas Robert .....        | Coalville.             |
| Thornock, John Hyrum .....         | Bloomington, Idaho.    |
| Thomason, Jennie.....              | Logan.                 |
| Thompson, Alton.....               | Scipio.                |
| Tibbits, George Samuel.....        | Providence.            |
| Turner, Edward Hugh.....           | Gentile Valley, Idaho. |

|                              |                        |
|------------------------------|------------------------|
| Turner, Lillian.....         | Gentile Valley, Idaho. |
| Tuttle, Lawrence A.....      | Manti.                 |
| Waylett, Margaret Mabel..... | Malad, Idaho.          |
| Webb, George Oliver.....     | Richmond.              |
| Webster, Francis, Jr. ....   | Cedar City.            |
| Welker, Roy Anson.....       | Bloomington, Idaho.    |
| West, John Thompson .....    | Pocatello, Idaho.      |
| Williams, Arthur.....        | Peterson.              |
| Wilson, Amy Elizabeth.....   | Logan.                 |

*DOMESTIC ART—SPECIAL WINTER COURSE.*

|                             |                      |
|-----------------------------|----------------------|
| Benson, Eva.....            | Logan.               |
| Buhler, Cecelia.....        | Logan.               |
| Bushman, June.....          | St. Joseph, Arizona. |
| Cowley, Katie .....         | Logan.               |
| Knox, Eva .....             | Logan.               |
| Partington, Martha.....     | Logan.               |
| Spencer, Emma Rebecca ..... | Porterville.         |
| Turner, May.....            | Logan.               |

*MEN'S WINTER COURSE.*

|                                  |                      |
|----------------------------------|----------------------|
| Adams, John Q .....              | Logan.               |
| Carlson, Swen Olsen .....        | Logan.               |
| Charles, John.....               | Logan.               |
| Fillerup, Andrew Peter, Jr ..... | Lake View.           |
| Ford, Parley.....                | Wallsburg.           |
| Goldsberry, Orson Stanton .....  | Paradise.            |
| Gunnarson, Joseph Nephi.....     | Logan.               |
| Hatch, Abram, Jr .....           | Heber City.          |
| Hone, Alma .....                 | Benjamin.            |
| Lau, Hyrum Moroni .....          | Soda Springs, Idaho. |
| Madsen, Hans .....               | Fairview.            |
| Olsen, John .....                | Logan.               |
| Partington, Joseph Alma .....    | Logan.               |
| Sjostrom, Charles Caverin .....  | Logan.               |
| Sjostrom, Gustave Malcome .....  | Logan.               |
| Taylor, Thomas, Jr.....          | Elba, Idaho.         |

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ANNUAL CATALOGUE

OF THE

Agricultural College

OF UTAH

FOR THE YEAR 1899--1900.

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LOGAN, UTAH.



THE DESERET NEWS, PRINTERS, SALT LAKE.



# Calendar, 1899-1900.

1899.



| JANUARY   |     |     |     |     |     |     | FEBRUARY |     |     |     |     |     |     | MARCH    |     |     |     |     |     |     | APRIL    |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|
| S         | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   |
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| 15        | 16  | 17  | 18  | 19  | 20  | 21  | 12       | 13  | 14  | 15  | 16  | 17  | 18  | 12       | 13  | 14  | 15  | 16  | 17  | 18  | 9        | 10  | 11  | 12  | 13  | 14  | 15  |
| 22        | 23  | 24  | 25  | 26  | 27  | 28  | 19       | 20  | 21  | 22  | 23  | 24  | 25  | 19       | 20  | 21  | 22  | 23  | 24  | 25  | 16       | 17  | 18  | 19  | 20  | 21  | 22  |
| 29        | 30  | 31  | ... | ... | ... | ... | 26       | 27  | 28  | ... | ... | ... | ... | 26       | 27  | 28  | 29  | 30  | 31  | ... | 23       | 24  | 25  | 26  | 27  | 28  | 29  |
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| MAY       |     |     |     |     |     |     | JUNE     |     |     |     |     |     |     | JULY     |     |     |     |     |     |     | AUGUST   |     |     |     |     |     |     |
| S         | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   |
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| 14        | 15  | 16  | 17  | 18  | 19  | 20  | 11       | 12  | 13  | 14  | 15  | 16  | 17  | 9        | 10  | 11  | 12  | 13  | 14  | 15  | 13       | 14  | 15  | 16  | 17  | 18  | 19  |
| 21        | 22  | 23  | 24  | 25  | 26  | 27  | 18       | 19  | 20  | 21  | 22  | 23  | 24  | 16       | 17  | 18  | 19  | 20  | 21  | 22  | 20       | 21  | 22  | 23  | 24  | 25  | 26  |
| 28        | 29  | 30  | 31  | ... | ... | ... | 25       | 26  | 27  | 28  | 29  | 30  | ... | 23       | 24  | 25  | 26  | 27  | 28  | 29  | 27       | 28  | 29  | 30  | 31  | ... | ... |
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| SEPTEMBER |     |     |     |     |     |     | OCTOBER  |     |     |     |     |     |     | NOVEMBER |     |     |     |     |     |     | DECEMBER |     |     |     |     |     |     |
| S         | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   |
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| 17        | 18  | 19  | 20  | 21  | 22  | 23  | 22       | 23  | 24  | 25  | 26  | 27  | 28  | 19       | 20  | 21  | 22  | 23  | 24  | 25  | 17       | 18  | 19  | 20  | 21  | 22  | 23  |
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1900

| JANUARY   |     |     |     |     |     |     | FEBRUARY |     |     |     |     |     |     | MARCH    |     |     |     |     |     |     | APRIL    |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|----------|-----|-----|-----|-----|-----|-----|
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| 21        | 22  | 23  | 24  | 25  | 26  | 27  | 18       | 19  | 20  | 21  | 22  | 23  | 24  | 18       | 19  | 20  | 21  | 22  | 23  | 24  | 22       | 23  | 24  | 25  | 26  | 27  | 28  |
| 28        | 29  | 30  | 31  | ... | ... | ... | 25       | 26  | 27  | 28  | ... | ... | ... | 25       | 26  | 27  | 28  | 29  | 30  | 31  | 29       | 30  | ... | ... | ... | ... | ... |
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| MAY       |     |     |     |     |     |     | JUNE     |     |     |     |     |     |     | JULY     |     |     |     |     |     |     | AUGUST   |     |     |     |     |     |     |
| S         | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   |
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| 13        | 14  | 15  | 16  | 17  | 18  | 19  | 10       | 11  | 12  | 13  | 14  | 15  | 16  | 15       | 16  | 17  | 18  | 19  | 20  | 21  | 12       | 13  | 14  | 15  | 16  | 17  | 18  |
| 20        | 21  | 22  | 23  | 24  | 25  | 26  | 17       | 18  | 19  | 20  | 21  | 22  | 23  | 22       | 23  | 24  | 25  | 26  | 27  | 28  | 19       | 20  | 21  | 22  | 23  | 24  | 25  |
| 27        | 28  | 29  | 30  | 31  | ... | ... | 24       | 25  | 26  | 27  | 28  | 29  | 30  | 29       | 30  | 31  | ... | ... | ... | ... | 26       | 27  | 28  | 29  | 30  | 31  | ... |
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| SEPTEMBER |     |     |     |     |     |     | OCTOBER  |     |     |     |     |     |     | NOVEMBER |     |     |     |     |     |     | DECEMBER |     |     |     |     |     |     |
| S         | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   | S        | M   | T   | W   | T   | F   | S   |
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| 9         | 10  | 11  | 12  | 13  | 14  | 15  | 14       | 15  | 16  | 17  | 18  | 19  | 20  | 11       | 12  | 13  | 14  | 15  | 16  | 17  | 9        | 10  | 11  | 12  | 13  | 14  | 15  |
| 16        | 17  | 18  | 19  | 20  | 21  | 22  | 21       | 22  | 23  | 24  | 25  | 26  | 27  | 18       | 19  | 20  | 21  | 22  | 23  | 24  | 16       | 17  | 18  | 19  | 20  | 21  | 22  |
| 23        | 24  | 25  | 26  | 27  | 28  | 29  | 28       | 29  | 30  | 31  | ... | ... | ... | 25       | 26  | 27  | 28  | 29  | 30  | ... | 23       | 24  | 25  | 26  | 27  | 28  | 29  |
| 30        | ... | ... | ... | ... | ... | ... | ...      | ... | ... | ... | ... | ... | ... | ...      | ... | ... | ... | ... | ... | ... | 30       | 31  | ... | ... | ... | ... | ... |

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## COLLEGE CALENDAR, 1899--1900.

FIRST TERM begins Tuesday September 19, and ends Friday, December 22, 1899.

SECOND TERM begins Wednesday, January 3, 1900, and ends Thursday, April 5.

THIRD TERM begins Tuesday, April 10, and ends Tuesday, June 12, 1900.

Commencement Exercises occur from Sunday, June 10, to Tuesday, June 12, 1900.

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## HOLIDAYS.

Thanksgiving Day.

Christmas vacation, December 22, to January 2.

Washington's Birthday, February 22.

Arbor Day, April 15.

Decoration Day, May 30.

Summer vacation begins June 13.



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HON. MARRINER W. MERRILL . . . . . Richmond  
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GEORGE L. SWENDSEN . . . . . Hydraulic Engineer  
F. B. LINFIELD. . . . . Dairy Husbandry  
JOHN A. WIDTSOE\* . . . . . Chemist  
U. P. HEDRICK . . . . . Horticulturist  
JAMES DRYDEN . . . . Meteorologist and Poultry Manager  
LEWIS A. MERRILL . . . . . Assistant Agriculturist  
JOHN A. CROCKETT . . . . . Assistant Dairyman  
JOHN STEWART . . . . . First Assistant Chemist  
JAMES C. THOMAS . . . . . Second Assistant Chemist  
ALLEN M. FLEMING . . . . . Treasurer  
JOSEPH E. WILSON . . . . . Secretary

\*Absent in Germany on leave.

## FACULTY.

Arranged in order of seniority of appointment, after the President.

---

JOSEPH M. TANNER, President.

Professor of Political Science.

JOHN T. CAINE, JR., B. S.

Principal of Preparatory Department.

JAMES DRYDEN,

Assistant Professor of Meteorology and Stenography.

ELIAS J. MAC EWAN, M. A.

Professor of English Language and Literature.

F. B. LINFIELD, B. S. A.,

Professor of Dairying and Animal Husbandry.

WILLARD S. LANGTON, B. S.,

Assistant Professor of Mathematics and Biology.

JOHN A. WIDTSOE, B. S.

Professor of Chemistry and Mineralogy.

(On Leave of absence.)

MRS. DALINDA COTEY, B. S.,

Professor of Domestic Arts.

MISS SARAH E. BOWEN,

Instructor in Sewing, Dressmaking and Millinery.

JOSEPH JENSON,

Professor of Mechanical Engineering,  
and Director of Work Shops.

MRS. SARA GODWIN GOODWIN,  
Librarian.

LUTHER FOSTER, B. S., M. S. A.,  
Professor of Agriculture and Director of Experiment  
Station.

LEWIS A. MERRILL, B. S.,  
Assistant Professor of Agriculture and Veterinary Science.

EDWARD W. ROBINSON,  
Assistant Professor of German and Drawing.

JOHN W. FARIS,  
Principal of the Commercial Department and Professor of  
Commercial Economics and Bookkeeping.

JOSEPH E. WILSON,  
Instructor in Penmanship.

ULYSSES P. HEDRICK, B. S.,  
Professor of Botany, Horticulture and Entomology.

GEORGE L. SWENDSEN, B. S.,  
Professor of Civil Engineering.

CLARENCE E. SNOW, B. S.,  
Professor of Mathematics and Physics.

GEORGE THOMAS, A. B.,  
Professor of History and Instructor in Chemistry.

RUTH EVELYN MOENCH,  
Instructor in Elocution and Physical Culture.

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Professor of Military Science and Tactics.

ALEXANDER LEWIS,  
Instructor in Vocal Music.

AUGUST J. HANSEN,  
Foreman in Carpentry.

JULIEN P. GRIFFIN,  
Foreman in Forging.

JOHN STEWART, B. S.,  
Assistant in Chemical Laboratory of Experiment Station.

JAMES C. THOMAS,  
Assistant in Chemical Laboratory of Experiment Station.

JOHN A. CROCKETT,  
Assistant in Dairy Department.

ANNA BEERS, B. S.,  
Assistant in Domestic Arts.

# Establishment of the College.

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An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of a recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbids the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land became available upon the admission of the Territory to Statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere:—



“SEC. 10.—In the appointment of professors, instructors, and other officers and assistants of said College, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this Act for the common good, irrespective of sects or parties, political or religious.”

“SEC. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field.”

It is clear that the Agricultural College was founded in the interest of industrial pursuits and professions to give not alone a technical education, but, in the language of the law, a “liberal and practical education.” The legislative founders of this institution sought to place within reach of the producing classes, an education for which the older institutions had not, as a rule, made provisions.

The policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the great vocations of the people of Utah: agriculture, the mechanic arts, commerce, and home work.

“The act of 1862,” says Senator Morrill, “proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training, such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with equal scraps of labor and of instruction, or something other than a college, they would not obey the national law.”

Under an act of Congress, approved March 2, 1887, the

College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment Station.

Under an act of Congress, approved August 30, 1890, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The act provides that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$25,000.

The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborers' cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, two houses, apparatus, and salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, a veterinary laboratory, and the employment of teachers. The legislature of 1896 appropriated \$12,000 for the construction of workshops, and general expenses for one year. The legislature of 1897 gave \$41,000 for the erection of a laboratory, the extension of shops, the maintenance of a manual training school, and for the general expenses during two and a half years. The legislature of 1899 appropriated \$40,905 for two years maintenance and various improvements.

The value of the College property now in possession may be put at the conservative figure of \$200,000.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

"SEC. 4. —The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights and immunities, franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively."

## LOCATION.

The College is located on a broad hill overlooking the town, one mile east of Main Street, Logan, and commands a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is unsurpassed, and perhaps unequalled by that of any other college in the country. A few hundred yards to the south is the Logan River, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley, and seen through the clear atmosphere, constitute a delightful and impressive panorama. The city is noted for its freedom from vice; it is quiet, orderly, clean, and generally attractive, with neat homes, fine public buildings, and electric lights and water system; the citizens are thrifty and progressive. The city has a population of about 6,000, and is the capital and commercial centre of an agricultural county with more than three times that population, known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about twelve by sixty miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch Mountains, and one of the most beautiful and healthful valleys in the western region.

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## EQUIPMENT.

THE MAIN BUILDING is one of the finest in the West, being a large handsome brick structure about 360 feet long and nearly 200 feet deep in the central part. It is complete as shown in the frontispiece, excepting the central front.

The basement contains:

The dairy rooms, equipped with the best apparatus for the manufacture of butter and cheese on scientific principles;

The laundry, kitchen and dining rooms, which are efficiently fitted with the requisite apparatus in each division;

Several rooms adapted for military squad drill; an assaying room, and the laboratory of the civil engineering department.

On the first floor are situated:

A large auditorium, with seating capacity for 1,500 people, which is used for college entertainments, and for assemblies of the students and their friends;

A similar auditorium, capable of seating 400, used daily as a chapel;

The library and reading room, of which full details will be found on a following page;

The office of President, Secretary, Professor of Domestic Arts, the sewing and millinery rooms, and several large class rooms.

On the second floor are found:

The biological, botanical, physical and entomological laboratories and lecture rooms, very efficiently equipped with the most modern apparatus for experiment and research in the respective sciences;

The offices and class room of the commercial department, which are well equipped with all the appliances for banking, commercial and general business;

Class rooms for English, mathematics and modern languages.

On the third floor are:

The gymnasium and the museum, large rooms as fully equipped as the means at the disposal of the Board of Trustees have hitherto rendered possible, the gymnasium being also used as a drill hall for young women, and for social gatherings of the faculty and students;

The museum, which has a large unused capacity, and which it is hoped donations in any of the arts and manufactures or in geological, ethnological, mineralogical, zoological and other divisions of science, from the citizens of Utah, or from other friends of education, will gradually fill;

The music rooms, which are supplied with superior instruments.

The main building is heated by steam and lighted by electricity in every part. The rooms are light and pleasant and the

halls spacious, extending on each floor the entire length of the building.

THE MECHANIC ARTS BUILDING, situated a little south of the main building, is one story high, except the central part, which is two stories. The ground floor of this central part is fitted up to accommodate forty-eight students in carpentry. To the east of the carpentry room is the forge room, containing twenty-four power blast forges and anvils with complete equipment of vise benches and tools; in an offset to the north is the power room, containing one five horse-power electric motor and fan for the forge blast, and one ten horse-power motor and exhaust fan, which draws all smoke from the forges into underground pipes and thence through the exhaust fan to the smoke stack.

Immediately south of the carpentry room is a room used for the wood-working machinery, consisting of ten turning laths, one planer, one band saw, one universal saw table, one jig saw, grindstones, etc. Adjoining this on the south, is the iron-working machinery room. Its equipment consists of lathes, planer, drill press and milling machine. This room also contains the tool room and a fifteen horse-power electric motor from which power is derived for all the machinery both in this room and in the wood-working machinery room. The second floor of the central part of the building is divided into three rooms; a class room; the director's office, and a department room well fitted with special drawing instruments and blue-printing apparatus. It also contains the annual class exhibit of students' work in mechanic arts.

The two rooms to the north of the central part, which are exactly similar to those south, are temporarily used as the students' chemical laboratory, and the experiment station chemical laboratory. The walls of the building are of brick and the roof of corrugated iron; it is steam heated and well lighted and ventilated throughout.

THE EXPERIMENT STATION building is a brick structure, containing the laboratories of the Agriculturist, Entomologist, and Horticulturist; the office of the Director of the Station,



and the library of the Professor of English. Advanced students participate in the work of the various laboratories, and a series of experimental research is carried on in each division by the professor in charge.

A MODEL BARN AND STOCKYARD are connected with the College. The barn is a wooden building about sixty feet square and contains a silo, a root cellar, and engine room and separate quarters for horses, cattle, sheep and swine; also model storage divisions for hay, grain and farming and horticultural implements.

THE DORMITORY for young women contains accommodation for about seventy-five lady students. Each room is about 12x14 feet, exclusive of a good closet, and is furnished with chairs, tables, a wash-stand, a full set of chamber ware, a looking glass, and either a bedstead or two cots; there are also registers for efficient ventilation. In addition to the rooms for the students, there are rooms for matron and for cooks and domestics, a model kitchen, a large dining hall, a pantry supplied with modern conveniences, a laundry and bath rooms. A large reception room is used for students' receptions, under the auspices of the President's wife, the ladies of the faculty, and the wives of the members of the faculty.

RESIDENCES for the College President, the Director of the Experiment Station, and the Farm Superintendent are situated on the campus. Cottages for farm laborers have also been provided.

A FORCING HOUSE AND A VETERINARY LABORATORY, both well fitted for their purposes, are situated on the College grounds.

THE FARM of about one hundred acres is well stocked with the best breeds of cattle, sheep, swine and poultry, and is fully provided with improved implements and farm machinery.

Three and a half acres of ground, close to the College building are appropriated to the use of students, for athletic sports.

## OBJECTS.

The College is in several ways accomplishing the objects for which it has been endowed:—

I. It gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all its departments, while the students are kept in sympathy with the industrial occupations.

II. It teaches the sciences applied to the various industries of farm, shop, and home. Chemistry, botany, entomology, biology, and mechanics are made prominent means of educating to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves, illustrates and fixes the daily lessons. At the same time lessons in agriculture, horticulture, engineering, and household economy show the application of science; and all are enforced by actual experiment.

III. It trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments of thoughtful brains. The drill of the shops, gardens, farm, and household departments, is made a part of the general education for usefulness, and insures a means of living to all who make good use of it. At the same time it preserves habits of industry and manual exercise and cultivates a taste for rural and domestic pursuits.

IV. It strives to increase experimental knowledge of agriculture and horticulture. The provision for extensive and accurate research, made by establishing the Experiment Station as a distinct department of the College, offers assurance of more definite results than can be obtained by ordinary methods.

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## REQUIREMENTS FOR ADMISSION.

I. Graduates of the Eighth grade of the district schools are permitted to enter the sub-freshman class without examination.

II. To enter the freshman year of the long courses or the first year of the short courses, the student must be at least fifteen years of age, and must pass a satisfactory examination in the following subjects, using the text books named, or their equivalents:

1. Reading, spelling and penmanship.
2. Geography—Appleton's *Higher Geography*.
3. United States History—Barnes's *United States History*.
4. Grammar—Maxwell's or Sheldon's *Advanced Lessons*.
5. Arithmetic—Harper's *Second Book*.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above; they are also admitted upon completion of the sub-freshman studies in this College.

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## ADMISSION TO ADVANCED STANDING.

Students of this College, or of any similar institution, who are desirous of being admitted to advanced standing must present themselves for examination in the required subjects on the Monday and Tuesday of the week in which the College opens in the fall term.

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## GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four years courses. A certificate is granted for the completion of the Short Courses in commercial branches, or domestic arts.

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## COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the college course; for a single term \$2.50. The privileges of the library and museum are free to students. In the chemical laboratory, work shops, and cooking rooms, students

are charged for the cost of the materials actually used by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificate of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

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## DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term.\* The studies to be taken are assigned and approved by the examiners. The entrance fee is then paid at the secretary's office; and the class card naming the studies to be pursued is countersigned by the president and secretary. The card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the faculty.

When students register for the second or third terms, the cards are secured from the secretary of the faculty, the studies assigned by officers designated by the president, the cards signed by the professors and returned to the secretary, as before.

\*For 1899:

Sept. 19, Grammar, 9-12.

Arithmetic, 1-4.

Sept. 20, U. S. History, 9-11.

Geography, 11:30-1:30.

Reading and Spelling, 2:30-4:30.

# COURSES OF STUDY.

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The first year is the same for all the four year courses, and there is but a slight variation in the second year. The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

I. Students in either course of Domestic Arts take sewing and dressmaking in the freshman year, in the place of shopwork in wood and iron, as indicated by the footnote to the schedule. In the sophomore year, second term, they take lectures on cooking, and laboratory practice in cooking, in the place of trigonometry; and in the third term, lectures on the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

II. In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students.

The studies of the first two years are planned to meet the requirements of the most numerous class of students, the majority of whom attend for two years or less after completing the studies of the district schools. These two years, as now planned in the schedule, provide as broad culture in a general way, and as thorough preparation for the special courses which follow, as the College is at present able to offer. It cannot assume, therefore, to vary the courses further than indicated above; and students are expected to pursue the studies as here laid down or as many of them as they are able to pursue.

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## AGRICULTURAL COURSE.

The aim of this course is the general education and scientific training of agriculturists. The training is as thorough as is possible in the short time allotted. The principal



exercises directly related to the successful pursuit of agriculture, are taught; but no pretension is made to train specialists in any one particular branch of science. The time for this is necessarily too short.

Under *Agriculture* in the junior and senior years are included a great variety of subjects, the intelligent pursuit of which requires as a foundation a certain knowledge of chemistry, physiology, biology, botany, and other sciences. The freshman and sophomore years are intended to give this preparatory training.

The Elementary Agricultural Course, extending over a period of two years, is offered to those students whose time or means will not permit them to devote four years to a training for their future vocation. It is made as practical as possible in order to meet the demands of the most numerous class.

The College also offers during the winter, a special course of lectures on practical agricultural topics, intended to reach those farmers who can leave their farms for a few short winter months only, but who appreciate the advantages of a knowledge of the fundamental principles underlying their business. The lectures in this course are of a popular character and have met with much success.

The figures in the following course schedules denote the number of hours devoted to each subject during the week.

## STUDIES IN AGRICULTURAL COURSE.

### FRESHMAN YEAR.

| FIRST TERM.         | SECOND TERM.            | THIRD TERM.           |
|---------------------|-------------------------|-----------------------|
| Grammar . . . . . 5 | Rhetoric. . . . . 5     | Literature. . . . . 5 |
| Algebra . . . . . 5 | Algebra and Geometry. 5 | Geometry. . . . . 5   |
| History . . . . . 5 | Physics . . . . . 3     | Physics . . . . . 3   |
| Drawing . . . . . 5 | History . . . . . 2     | History . . . . . 2   |

### *Afternoon Work.*

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Shopwork . . . . . 6 | Shopwork . . . . . 6 | Shopwork . . . . . 6 |
|                      | Physics . . . . . 4  | Physics . . . . . 4  |

SOPHOMORE YEAR.

|                                                |   |                                       |   |                                       |   |
|------------------------------------------------|---|---------------------------------------|---|---------------------------------------|---|
| Chemistry. . . . .                             | 3 | Chemistry . . . . .                   | 3 | Chemistry . . . . .                   | 3 |
| Rhetoric. . . . .                              | 2 | Rhetoric. . . . .                     | 5 | Rhetoric. . . . .                     | 2 |
| Solid Geometry and<br>Higher Algebra . . .     | 5 | Trigonometry. . . . .                 | 5 | Botany . . . . .                      | 5 |
| Civil Government and<br>Constitutional law . . | 5 | Anatomy and Physi-<br>ology . . . . . | 2 | Anatomy and Physi-<br>ology . . . . . | 5 |

*Afternoon Work.*

|                     |   |                                       |   |                                       |   |
|---------------------|---|---------------------------------------|---|---------------------------------------|---|
| Chemistry . . . . . | 6 | Chemistry . . . . .                   | 6 | Chemistry . . . . .                   | 6 |
|                     |   | Anatomy and Physi-<br>ology . . . . . | 4 | Anatomy and Physi-<br>ology . . . . . | 4 |

JUNIOR YEAR.

|                          |   |                          |   |                         |   |
|--------------------------|---|--------------------------|---|-------------------------|---|
| Physiological Botany . . | 3 | Agricultural Chemistry.. | 3 | Agricultural Chemistry. | 3 |
| Literature. . . . .      | 5 | Horticulture. . . . .    | 5 | Entomology . . . . .    | 5 |
| Psychology . . . . .     | 5 | German . . . . .         | 3 | German . . . . .        | 3 |
| German . . . . .         | 3 | Zoology.. . . .          | 5 | Zoology . . . . .       | 2 |
|                          |   |                          |   | Rural Engineering . .   | 3 |

*Afternoon Work.*

|                        |   |                      |   |                      |   |
|------------------------|---|----------------------|---|----------------------|---|
| Physiological Botany . | 4 | Mineralogy . . . . . | 6 | Entomology . . . . . | 4 |
| Bacteriology . . . . . | 6 | Zoology . . . . .    | 4 | Zoology . . . . .    | 4 |

SENIOR YEAR.

|                                           |   |                         |   |                         |   |
|-------------------------------------------|---|-------------------------|---|-------------------------|---|
| Dairying and Animal<br>Industry . . . . . | 5 | Political Economy . . . | 3 | Agronomy . . . . .      | 3 |
| Horticulture . . . . .                    | 3 | Veterinary Science . .  | 5 | Veterinary Science . .  | 5 |
| German . . . . .                          | 3 | German . . . . .        | 3 | German . . . . .        | 3 |
| Cheese Making<br>Mondays.                 |   | Geology . . . . .       | 3 | or Literature . . . . . | 5 |
|                                           |   | Stock Feeding . . . .   | 2 | Geology . . . . .       | 3 |

*Afternoon Work.*

|                        |   |                        |   |                         |   |
|------------------------|---|------------------------|---|-------------------------|---|
| Dairy Practice . . . . | 4 | Veterinary Anatomy . . | 6 | Veterinary Clinic . . . | 4 |
| Bookkeeping . . . . .  | 6 | Stock Feeding . . . .  | 2 | Geology . . . . .       | 4 |

FIVE MONTHS COURSE.

Many farmers' sons find it impossible to enter upon their studies at the beginning of the year. The last legislature therefore, made special provision for a course beginning about the first of November and continuing until the spring vacation. The year will be divided into two terms of two and three months respectively. The following studies have been prescribed for the first two years:

## FIRST YEAR.

## FIRST TERM.

|                       |   |
|-----------------------|---|
| Reading . . . . .     | 5 |
| Arithmetic . . . . .  | 5 |
| Grammar . . . . .     | 5 |
| Penmanship . . . . .  | 5 |
| Agriculture . . . . . | 5 |

## SECOND TERM.

|                       |   |
|-----------------------|---|
| Reading . . . . .     | 5 |
| Arithmetic . . . . .  | 5 |
| Grammar . . . . .     | 5 |
| Penmanship . . . . .  | 5 |
| Agriculture . . . . . | 5 |

*Afternoon Work.*

Carpentry.

Carpentry.

## SECOND YEAR.

|                               |   |
|-------------------------------|---|
| English Composition . . . . . | 5 |
| Algebra . . . . .             | 5 |
| U. S. History . . . . .       | 5 |
| Agriculture . . . . .         | 5 |

|                               |   |
|-------------------------------|---|
| English Composition . . . . . | 5 |
| Algebra . . . . .             | 5 |
| U. S. History . . . . .       | 5 |
| Agriculture . . . . .         | 5 |

*Afternoon Work.*

Cabinet Making.

Cabinet Making.

## ELEMENTARY COURSE IN AGRICULTURE.

## FIRST YEAR.

## FIRST TERM.

|                           |   |
|---------------------------|---|
| Grammar . . . . .         | 5 |
| Arithmetic . . . . .      | 5 |
| Drawing . . . . .         | 5 |
| Breeds and Breeding . . . | 5 |

## SECOND TERM.

|                             |   |
|-----------------------------|---|
| Grammar . . . . .           | 5 |
| Arithmetic . . . . .        | 5 |
| Chemistry . . . . .         | 3 |
| Soils; Crops, etc . . . . . | 5 |

## THIRD TERM.

|                           |   |
|---------------------------|---|
| Grammar . . . . .         | 5 |
| Arithmetic . . . . .      | 3 |
| Rural Engineering . . . . | 5 |
| Elementary Botany . . . . | 5 |

*Afternoon.*

Woodshop . . . . . 6

Stock Judging . . . . . 2  
 Agricultural Practice . . 4

Agricultural Practice . . 4  
 Botanical Practice . . . 4

## SECOND YEAR.

|                           |   |
|---------------------------|---|
| Geography . . . . .       | 5 |
| General History . . . . . | 5 |
| Horticulture . . . . .    | 3 |
| Penmanship . . . . .      | 5 |

|                            |   |
|----------------------------|---|
| Reading . . . . .          | 5 |
| Penmanship . . . . .       | 2 |
| Veterinary Science . . . . | 5 |
| Stock Feeding . . . . .    | 2 |

|                         |   |
|-------------------------|---|
| U. S. History . . . . . | 5 |
| Reading . . . . .       | 2 |
| Entomology . . . . .    | 5 |
| Dairying . . . . .      | 5 |

*Afternoon.*

Iron Shop . . . . . 10

Veterinary . . . . . 6  
 Agricultural and Horti-  
 cultural Practice. . 2

Dairy Practice . . . . . 4  
 Agricultural and Horti-  
 cultural Practice.

## MECHANICAL ENGINEERING COURSE.

The aim of the Mechanical Engineering Course is to afford the student such training as will qualify him to deal intelligently with engineering problems in general, and prepare him for a professional career. While the distinctive purpose of the course is to give instruction in the designing and construction of machinery, considerable instruction is given in municipal, irrigation and general engineering, to form a basis for practice in these special branches.

The instruction in all branches aims to blend the theoretical with the practical, so that the student may become familiar not only with the purely scientific phase of the work, but with its application to modern practice. The student is brought, as early as possible, into contact with practical problems, the graphical as well as the analytical method being used throughout their solution. Besides the practical tendency of the course, it has a high disciplinary value, and is especially adapted to develop originality of thought and action.

The more strictly professional work may be classified as mathematics, physics, applied mechanics, drawing and shopwork. Sufficient work in English, history, and other general subjects is given throughout the course to meet all ordinary demands.

## STUDIES IN MECHANICAL ENGINEERING COURSE.

### FRESHMAN YEAR.

| FIRST TERM.         | SECOND TERM.            | THIRD TERM.            |
|---------------------|-------------------------|------------------------|
| Grammar . . . . . 5 | Rhetoric . . . . . 5    | Literature . . . . . 5 |
| Algebra . . . . . 5 | Algebra and Geometry. 5 | Geometry . . . . . 5   |
| History . . . . . 5 | Physics . . . . . 3     | Physics . . . . . 3    |
| Drawing . . . . . 5 | History . . . . . 2     | History . . . . . 2    |

### *Afternoon Work.*

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Shopwork . . . . . 6 | Shopwork . . . . . 6 | Shopwork . . . . . 6 |
|                      | Physics . . . . . 4  | Physics . . . . . 4  |

## SOPHOMORE YEAR.

Chemistry . . . . . 3  
 Rhetoric . . . . . 2  
 Solid Geometry and  
 Higher Algebra . . 5  
 Civil Government and  
 Constitutional Law. 5

Chemistry . . . . . 3  
 Rhetoric . . . . . 5  
 Trigonometry . . . . 5

Chemistry . . . . . 3  
 Rhetoric . . . . . 2  
 Analytical Geometry . 5  
 Elementary Mechanics. 3  
 Surveying . . . . . 2

*Afternoon Work.*

Chemistry . . . . . 6  
 Shopwork . . . . . 4

Chemistry . . . . . 6  
 Pattern Making . . . . 4

Chemistry . . . . . 6  
 Field Surveying . . . . 4

## JUNIOR YEAR.

Heat and Electricity . . 5  
 Calculus . . . . . 3  
 Mechanical Drawing . . 5  
 Elements of Mechanism. 5

Hydraulics . . . . . 5  
 Calculus . . . . . 5  
 Descriptive Geometry . 6  
 Mechanical Drawing . . 4

Materials of engineering. 5  
 Calculus . . . . . 3  
 Metallurgy, Iron and  
 Steel . . . . . 2  
 Mechanical Drawing . . 5  
 Hydraulics . . . . . 3

*Afternoon Work.*

Machine Shops . . . . 6  
 Physics . . . . . 4

Machine Shops . . . . 10

Machine Shops . . . . 10

## SENIOR YEAR.

Applied Mechanics . . . 5  
 Steam Engineering . . . 3  
 Literature . . . . . 5  
 Dynamics of Machines. 3

Applied Mechanics . . . 5  
 Steam Engineering . . . 3  
 Irrigation Engineering . 5  
 Power, Measurement,  
 and Transmission . . 5

Applied Mechanics . . . 5  
 Steam Engineering . . . 3  
 Applied electricity . . . 5  
 Municipal Engineering. 5

*Afternoon Work.*

Machine Design . . . . 10

Machine Design . . . . 10

Thesis . . . . . 10

## CIVIL ENGINEERING COURSE.

The technical instruction in this course extends over a period of two years, and is intended to afford a practical and theoretical training in those subjects needed to prepare young men to undertake intelligently the problems that ordinarily present themselves in the profession of the civil engineer. Prominence is given to hydraulics, especially that part of the subject pertaining to irrigation systems and the use of water power.



The training in surveying will qualify the student to deal intelligently with any problem that may arise in the various kinds of surveying. While in all the subjects of this course, much importance is given to the practical work in the field, yet the value of a strong theoretic training is not lost sight of; and therefore strong courses in mathematics are given, together with the courses in literature and science necessary to make up the general education of the citizen.

## STUDIES IN CIVIL ENGINEERING COURSE.

### FRESHMAN YEAR.

| FIRST TERM.         | SECOND TERM.             | THIRD TERM.            |
|---------------------|--------------------------|------------------------|
| Grammar . . . . . 5 | Rhetoric. . . . . 5      | Literature . . . . . 5 |
| Algebra . . . . . 5 | Algebra and Geometry...5 | Geometry. . . . .      |
| History. . . . . 5  | Physics . . . . . 3      | Physics. . . . .       |
| Drawing . . . . . 3 | History . . . . . 2      | History . . . . . 2    |

#### *Afternoon Work.*

|                      |                      |                     |
|----------------------|----------------------|---------------------|
| Shopwork . . . . . 6 | Shopwork . . . . . 6 | Shopwork. . . . . 9 |
|                      | Physics. . . . . 4   | Physics . . . . . 4 |

### SOPHOMORE YEAR.

|                                                 |                         |                           |
|-------------------------------------------------|-------------------------|---------------------------|
| Chemistry . . . . . 3                           | Chemistry . . . . . 3   | Chemistry . . . . . 3     |
| Rhetoric . . . . . 2                            | Rhetoric . . . . . 5    | Rhetoric. . . . . 2       |
| Solid Geometry and<br>Higher Algebra . . . 5    | Trigonometry. . . . . 5 | Analytical Geometry.....5 |
| Civil Government and<br>Constitutional Law ,. 5 |                         | Elementary Mechanics..3   |
|                                                 |                         | Surveying .. . . . 2      |

#### *Afternoon Work.*

|                      |                          |                          |
|----------------------|--------------------------|--------------------------|
| Chemistry. . . . . 6 | Chemistry . . . . . 6    | Chemistry . . . . . 6    |
| Shopwork. . . . . 4  | Pattern-making . . . . 4 | Field Surveying. . . . 4 |

### JUNIOR YEAR.

|                          |                          |                          |
|--------------------------|--------------------------|--------------------------|
| Heat and Electricity...5 | Hydraulics. . . . . 5    | Hydraulic . . . . . 3    |
| Calculus . . . . . 3     | Calculus . . . . . 5     | Materials of Eng'ring..5 |
| Surveying . . . . . 3    | Descriptive Geometry..6  | Roads and Pavements..3   |
| Mechanical Drawing . . 2 | Mechanical Drawing . . 2 | Calculus . . . . . 3     |
| Elements of Mechanism 5  |                          | Metallurgy . . . . . 2   |
|                          |                          | Mechanical Drawing . . 2 |

#### *Afternoon Work.*

|                                          |                         |                                                    |
|------------------------------------------|-------------------------|----------------------------------------------------|
| Field Practice in Engineering. . . . . 6 | Drawing and Designing 6 | Hydrographic Surveying<br>and Designing. . . . . 6 |
| Physics. . . . . 4                       |                         |                                                    |

## SENIOR YEAR.

|                          |                           |                           |
|--------------------------|---------------------------|---------------------------|
| Higher Surveying . . . 5 | Power, Measurement, and   | Applied Mechanics. . . 5  |
| Applied Mechanics . . 5  | Transmission . . . . 5    | Applied Electricity . . 5 |
| Literature . . . . . 5   | Applied Mechanics. . . 5  | Municipal Engineering. 5  |
| Steam Engineering. . . 3 | Irrigation Engineering. 5 |                           |
|                          | Railroad Structures . . 3 |                           |

*Afternoon Work.*

|                                                |                                     |                           |
|------------------------------------------------|-------------------------------------|---------------------------|
| Experimental Work, Engineering Designs . . . 6 | Mineralogy and Assaying . . . . . 6 | Preparation of Thesis, 10 |
|------------------------------------------------|-------------------------------------|---------------------------|

## DOMESTIC ARTS COURSE.

The course for young women is in general the same as for young men in the four years course in agriculture, except in the hours devoted to the shop and the farm. In place of these there are special studies adapted to women's work. The value and necessity of special training in household economy are too well known to require explanation. It will be seen that special attention is given to those branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to floriculture, and economic botany should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, as adapted to window gardening, in the preparation of the soil, and in the growth of vegetables and small fruits. Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work.

Upon completion of the freshman and sophomore years of the regular Domestic Arts Course, the student is entitled to a certificate of graduation in the two years course.

# STUDIES IN DOMESTIC ARTS COURSE.

## FRESHMAN YEAR.

### FIRST TERM.

|                   |   |
|-------------------|---|
| Grammar . . . . . | 5 |
| Algebra . . . . . | 5 |
| History . . . . . | 5 |
| Drawing . . . . . | 5 |

### SECOND TERM.

|                         |   |
|-------------------------|---|
| Rhetoric . . . . .      | 5 |
| Algebra and Geometry. . | 5 |
| Physics . . . . .       | 3 |
| History . . . . .       | 2 |

### THIRD TERM.

|                      |   |
|----------------------|---|
| Literature . . . . . | 5 |
| Geometry . . . . .   | 5 |
| Physics . . . . .    | 3 |
| History . . . . .    | 2 |

### *Afternoon Work.*

|                                      |   |
|--------------------------------------|---|
| Laundrying and Sew-<br>ing . . . . . | 5 |
| Physical Culture. . . .              | 3 |
| (Elective.)                          |   |

|                         |   |
|-------------------------|---|
| Sewing . . . . .        | 5 |
| Physical Culture. . . . | 3 |
| (Elective.)             |   |

|                         |   |
|-------------------------|---|
| Dressmaking . . . . .   | 5 |
| Physical Culture. . . . | 3 |
| (Elective.)             |   |

## SOPHOMORE YEAR.

|                                                 |   |
|-------------------------------------------------|---|
| Chemistry . . . . .                             | 3 |
| Rhetoric . . . . .                              | 2 |
| Solid Geometry and<br>Higher Algebra . . . .    | 5 |
| Civil Government and<br>Constitutional Law. . . | 5 |

|                                       |   |
|---------------------------------------|---|
| Chemistry . . . . .                   | 3 |
| Rhetoric . . . . .                    | 5 |
| Cooking (Lectures) . . .              | 5 |
| Anatomy and Physi-<br>ology . . . . . | 2 |

|                                       |   |
|---------------------------------------|---|
| Chemistry . . . . .                   | 3 |
| Rhetoric . . . . .                    | 2 |
| Science of Nutrition . .              | 5 |
| Anatomy and Physi-<br>ology . . . . . | 5 |

### *Afternoon Work.*

|                      |   |
|----------------------|---|
| Fruit Work . . . . . | 4 |
| Chemistry . . . . .  | 6 |

|                        |   |
|------------------------|---|
| Cooking Practice . . . | 4 |
| Chemistry . . . . .    | 6 |

|                                            |   |
|--------------------------------------------|---|
| Dietetics and Invalid<br>Cooking . . . . . | 4 |
| Chemistry . . . . .                        | 6 |

## JUNIOR YEAR.

|                      |   |
|----------------------|---|
| Literature . . . . . | 5 |
| German . . . . .     | 3 |
| Sanitation . . . . . | 3 |
| Psychology . . . . . | 5 |

|                                             |   |
|---------------------------------------------|---|
| German . . . . .                            | 3 |
| Trigonometry. . . . .                       | 5 |
| Zoology . . . . .                           | 5 |
| Designing, Cutting and<br>Fitting . . . . . | 5 |

|                   |   |
|-------------------|---|
| Hygiene . . . . . | 5 |
| German . . . . .  | 3 |
| Botany . . . . .  | 5 |
| Zoology . . . . . | 2 |

### *Afternoon Work.*

|                        |   |
|------------------------|---|
| Bacteriology . . . . . | 6 |
| Chemistry of Foods . . | 4 |

|                      |   |
|----------------------|---|
| Zoology . . . . .    | 4 |
| Mineralogy . . . . . | 6 |

|                        |   |
|------------------------|---|
| Floriculture . . . . . | 6 |
| Zoology . . . . .      | 4 |

## SENIOR YEAR.

|                                |   |
|--------------------------------|---|
| Physiological Botany . .       | 3 |
| German . . . . .               | 3 |
| Household Economy . .          | 5 |
| Dairying . . . . .             | 5 |
| Cheese making on Mon-<br>days. |   |

|                         |   |
|-------------------------|---|
| Political Economy . . . | 3 |
| Organic Chemistry . . . | 5 |
| German . . . . .        | 3 |
| Fancy Work . . . . .    | 2 |
| Geology . . . . .       | 3 |

|                      |   |
|----------------------|---|
| Literature . . . . . | 5 |
| German . . . . .     | 3 |
| Geology . . . . .    | 3 |
| Entomology . . . . . | 5 |
| Fancy Work . . . . . | 2 |

### *Afternoon Work.*

|                          |   |
|--------------------------|---|
| Dairying . . . . .       | 4 |
| Physiological Botany . . | 4 |

|                        |    |
|------------------------|----|
| Book-keeping . . . . . | 10 |
|------------------------|----|

|                      |   |
|----------------------|---|
| Geology . . . . .    | 4 |
| Entomology . . . . . | 4 |

## DOMESTIC ARTS SHORT COURSE.

This includes the studies of the freshman and sophomore years as given in the regular Domestic Arts Course. The privilege is given of substituting, subject to the approval of the faculty, a household economy study for some study in the regular sophomore year.

## COMMERCIAL COURSE.

The object of this course is to broaden the intelligence of accountants, and to prepare students for positions as business men, who form a large class, having a direct and important relation to the material, social and political life of the nation. They should have associated with their technical work a knowledge of those subjects that will give them an enlarged view of their varied relations as citizens of the state. The College, therefore, offers here a much broader general education than is common in commercial courses.

The technical feature of the course is a thorough training in penmanship, typewriting, stenography, commercial calculations, bookkeeping, business economics, political economy, history of commerce, and commercial law. The course is broad enough to prepare students for teaching, or for the study of the law. For those who are unable to take the four years course, a course of two years is offered, which will fairly well qualify them for positions as accountants and stenographers. The department is well equipped with desks, counters and typewriters, making the presentation of the technical work as practical as is possible in a college.

## STUDIES IN COMMERCIAL COURSE.

### FRESHMAN YEAR.

| FIRST TERM.         | SECOND TERM.            | THIRD TERM.            |
|---------------------|-------------------------|------------------------|
| Grammar . . . . . 5 | Rhetoric . . . . . 5    | Literature . . . . . 5 |
| Algebra . . . . . 5 | Algebra and Geometry. 5 | Geometry . . . . . 5   |
| History . . . . . 5 | Physics . . . . . 3     | Physics . . . . . 3    |
| Drawing . . . . . 5 | History . . . . . 2     | History . . . . . 2    |

*Afternoon Work.*

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Shopwork . . . . . 6 | Shopwork . . . . . 6 | Shopwork . . . . . 6 |
|                      | Physics . . . . . 4  | Physics . . . . . 4  |

SOPHOMORE YEAR.

|                                                 |                                         |                                         |
|-------------------------------------------------|-----------------------------------------|-----------------------------------------|
| Chemistry . . . . . 3                           | Chemistry . . . . . 3                   | Chemistry . . . . . 3                   |
| Rhetoric . . . . . 2                            | Rhetoric . . . . . 5                    | Rhetoric . . . . . 2                    |
| Solid Geometry and<br>Higher Algebra . . 5      | Trigonometry . . . . 5                  | Analytical Geometry . 5                 |
| Civil Government and<br>Constitutional Law, . 5 | Anatomy and Physi-<br>ology . . . . . 2 | Anatomy and Physi-<br>ology . . . . . 5 |
|                                                 |                                         | Surveying . . . . . 2                   |

*Afternoon Work.*

|                       |                       |                                       |
|-----------------------|-----------------------|---------------------------------------|
| Chemistry . . . . . 6 | Chemistry . . . . . 6 | Chemistry . . . . . 6                 |
|                       | Anatomy . . . . . 4   | Anatomy or Survey-<br>ing . . . . . 4 |

JUNIOR YEAR.

|                            |                          |                           |
|----------------------------|--------------------------|---------------------------|
| Heat and Electricity . . 3 | Ag'rl Chemistry . . . 3  | Agricultural Chemistry. 3 |
| or Stenography . . . . 5   | or Stenography . . . . 5 | or Stenography . . . . 5  |
| German . . . . . 3         | German . . . . . 3       | German . . . . . 3        |
| Calculus . . . . . 3       | Calculus . . . . . 5     | Botany . . . . . 5        |
| Psychology . . . . . 5     | Zoology . . . . . 5      | Hist. of Commerce . . 5   |

*Afternoon Work.*

|                            |                         |                          |
|----------------------------|-------------------------|--------------------------|
| Science of Accts . . . . 5 | Bookkeeping . . . . . 6 | Bookkeeping . . . . . 10 |
| Physics . . . . . 4        | Zoology . . . . . 4     |                          |

SENIOR YEAR.

|                            |                         |                        |
|----------------------------|-------------------------|------------------------|
| Physiological Botany . . 3 | Commercial Law . . . 5  | Commercial Law . . . . |
| German . . . . . 3         | Geology . . . . . 3     | Geology . . . . . 3    |
| Literature . . . . . 5     | German . . . . . 3      | German . . . . . 3     |
| Comm'l Calculations . . 5  | Political Economy . . 3 | Literature . . . . . 5 |

*Afternoon Work.*

|                            |                           |                                                    |
|----------------------------|---------------------------|----------------------------------------------------|
| Stenography . . . . . 5    | Stenography . . . . . 5   | Stenography . . . . . 5                            |
| or Business Practice . . 5 | or Business Customs . . 5 | or Auditing and Expert-<br>ing of Accounts . . . 5 |
| Typewriting . . . . . 5    | Typewriting . . . . . 5   | Typewriting . . . . . 5                            |

STUDIES IN SHORT COMMERCIAL COURSE.

FIRST YEAR.

FIRST TERM.

|                     |
|---------------------|
| Grammar . . . . . 5 |
| Algebra . . . . . 5 |
| History . . . . . 5 |
| Drawing . . . . . 5 |

SECOND TERM.

|                          |
|--------------------------|
| Rhetoric . . . . . 5     |
| Algebra and Geometry . 5 |
| Physics . . . . . 3      |
| History . . . . . 2      |

THIRD TERM.

|                        |
|------------------------|
| Literature . . . . . 5 |
| Geometry . . . . . 5   |
| Physics . . . . . 3    |
| History . . . . . 2    |



*Afternoon Work.*

|                             |                         |                         |
|-----------------------------|-------------------------|-------------------------|
| Science of Accounts . . . 5 | Bookkeeping . . . . . 6 | Bookkeeping . . . . . 6 |
|                             | Physics . . . . . 4     | Physics . . . . . 4     |

## SECOND YEAR.

|                                                    |                             |                            |
|----------------------------------------------------|-----------------------------|----------------------------|
| Solid Geom. and Higher<br>Algebra . . . . . 5      | Stenography . . . . . 5     | Botany . . . . . 5         |
| or Stenography . . . . . 5                         | Rhetoric . . . . . 5        | or Stenography . . . . . 5 |
| Rhetoric . . . . . 2                               | Political Economy . . . . 3 | Rhetoric . . . . .         |
| Comm'l Calculations . . . 5                        | Commercial Law . . . . . 5  | Hist. of Commerce . . .    |
| Civil Government and<br>Constitutional Law . . . 5 |                             | Commercial Law . . . . 5   |

*Afternoon Work.*

|                              |                             |                           |
|------------------------------|-----------------------------|---------------------------|
| Stenography . . . . . 5      | Stenography . . . . . 5     | Stenography . . . . . 5   |
| or Business Practice . . . 5 | or Business Customs . . . 5 | or Auditing and Ex-       |
| Typewriting . . . . . 5      | Typewriting . . . . . 5     | perting of Accounts . . 5 |
|                              |                             | Typewriting . . . . . 5   |

## GENERAL SCIENCE COURSE.

This course is believed to be especially adapted to the requirements of those preparing to study medicine or pharmacy, or to take technological training abroad. It will also offer excellent preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

## STUDIES IN GENERAL SCIENCE COURSE.

## FRESHMAN YEAR.

## FIRST TERM.

|                     |
|---------------------|
| Grammar . . . . . 5 |
| Algebra . . . . . 5 |
| History . . . . . 5 |
| Drawing . . . . . 5 |

## SECOND TERM.

|                            |
|----------------------------|
| Rhetoric . . . . . 5       |
| Algebra and Geometry . . 5 |
| Physics . . . . . 3        |
| History . . . . . 2        |

## THIRD TERM.

|                        |
|------------------------|
| Literature . . . . . 5 |
| Geometry . . . . . 5   |
| Physics . . . . . 3    |
| History . . . . . 2    |

*Afternoon Work.*

|                      |                      |                      |
|----------------------|----------------------|----------------------|
| Shopwork . . . . . 6 | Shopwork . . . . . 6 | Shopwork . . . . . 6 |
|                      | Physics . . . . . 4  | Physics . . . . . 4  |

## SOPHOMORE YEAR.

|                                                    |                                       |                                       |
|----------------------------------------------------|---------------------------------------|---------------------------------------|
| Chemistry . . . . . 3                              | Chemistry . . . . . 3                 | Chemistry . . . . . 3                 |
| Rhetoric . . . . . 2                               | Rhetoric . . . . . 5                  | Rhetoric . . . . . 2                  |
| Solid Geometry and<br>Higher Algebra . . . 5       | Trigonometry . . . . . 5              | Analytical Geometry . . 5             |
| Civil Government and<br>Constitutional Law . . . 5 | Anatomy and Physiology<br>. . . . . 2 | Anatomy and Physiology<br>. . . . . 5 |

*Afternoon Work.*

|                     |   |                     |   |                     |   |
|---------------------|---|---------------------|---|---------------------|---|
| Chemistry . . . . . | 6 | Chemistry . . . . . | 6 | Chemistry . . . . . | 6 |
|                     |   | Anatomy . . . . .   | 4 | Anatomy . . . . .   | 4 |

JUNIOR YEAR.

|                      |   |                           |   |                           |   |
|----------------------|---|---------------------------|---|---------------------------|---|
| Literature . . . . . | 5 | Agr'l Chemistry . . . . . | 3 | Agr'l Chemistry . . . . . | 3 |
| German . . . . .     | 3 | German . . . . .          | 3 | German . . . . .          | 3 |
| Calculus . . . . .   | 3 | Calculus . . . . .        | 5 | Botany . . . . .          | 5 |
| Psychology . . . . . | 5 | Zoology . . . . .         | 5 | Zoology . . . . .         | 2 |
|                      |   |                           |   | Surveying . . . . .       | 2 |

*Afternoon Work.*

|                        |   |                      |   |                     |   |
|------------------------|---|----------------------|---|---------------------|---|
| Bacteriology . . . . . | 6 | Mineralogy . . . . . | 6 | Zoology . . . . .   | 4 |
|                        |   | Zoology . . . . .    | 4 | Surveying . . . . . | 4 |

SENIOR YEAR.

|                            |   |                         |   |                         |   |
|----------------------------|---|-------------------------|---|-------------------------|---|
| Heat and Electricity . . . | 5 | Political Economy . . . | 3 | Literature . . . . .    | 5 |
| Physiological Botany . .   | 3 | German . . . . .        | 3 | German . . . . .        | 3 |
| German . . . . .           | 3 | Organic Chemistry . . . | 5 | Organic Chemistry . . . | 5 |
| Horticulture . . . . .     | 3 | Geology . . . . .       | 3 | Geology . . . . .       | 3 |
|                            |   |                         |   | or Entomology . . . . . | 5 |

*Afternoon Work.*

|                            |   |                          |   |                         |   |
|----------------------------|---|--------------------------|---|-------------------------|---|
| Physiological Botany . . . | 4 | Analytical Chemistry . . | 6 | Entomology or . . . . . | 4 |
| Physics . . . . .          | 4 |                          |   | Geology . . . . .       | 4 |

# DEPARTMENTS OF INSTRUCTION.

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In the previous pages the order in which studies are pursued has been stated. Under the present title a somewhat detailed account will be given of the topics embraced in the several departments of instruction.

## AGRICULTURE.

I. RURAL ENGINEERING. The spring term of the junior year in the long course, and the corresponding part of the second year of the short course, are given to the various topics embraced in the general subject of rural engineering. The work covers in a general way the following topics:

1. *History, Drainage and Irrigation:* History of Agriculture, showing the successive steps by which the art has attained its present position; farm drainage, its practical effects; land needing drainage, and the different problems involved in laying out and putting in a system of drains; practical questions relating to irrigation; road making; and the selection, arrangement and management of a farm with reference to special systems to be pursued.

PROF. FOSTER.

2. *Buildings, Fences and Machinery:* How to build cheap, substantial farm cottages, barns, stables, and pens; location and interior arrangement of farm buildings; development, care and use of farm implements and machinery; the mechanical principles involved in their construction and different adjustments affecting draught; fences and gates, their necessity, cost, kinds and construction; wood for gates and fences, time to cut, conditions favorable to decay and how to prolong durability; discussion of Utah state fence laws.

ASSISTANT PROF. MERRILL.



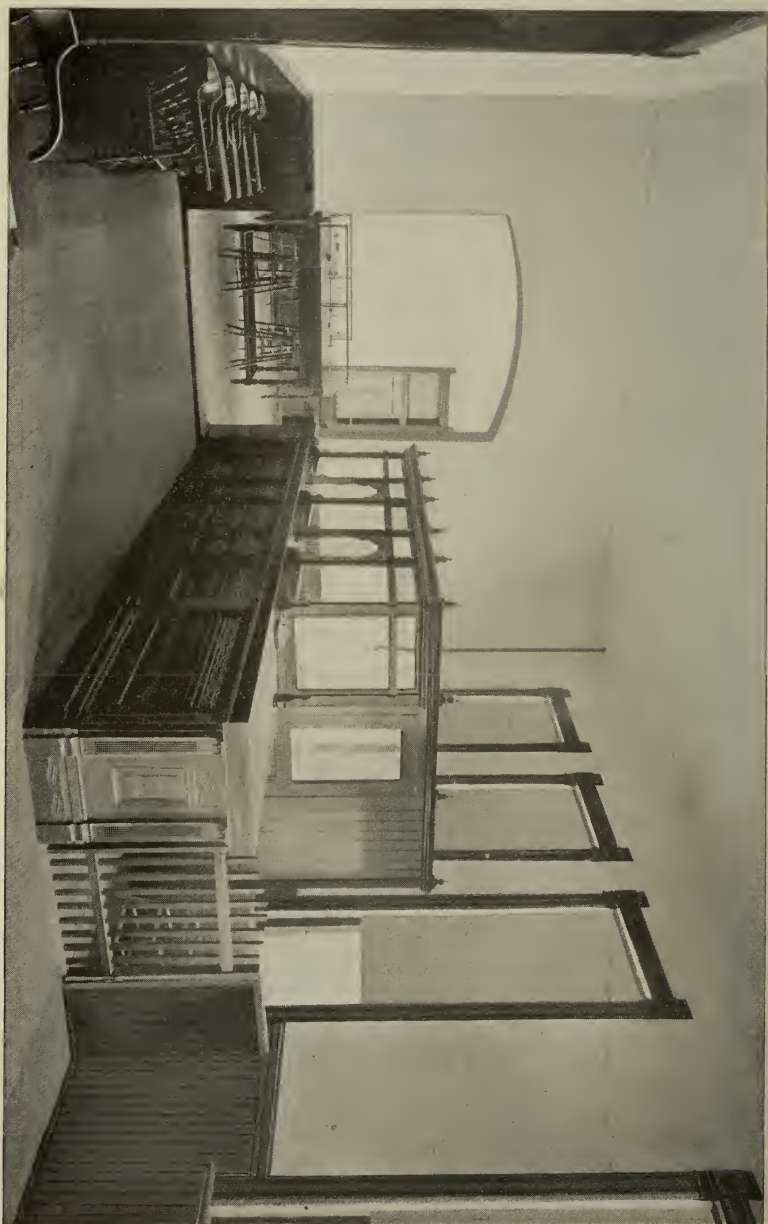
MAIN COLLEGE BUILDING.  
COMPLETE EXCEPTING THE CENTRAL FRONT.

LIBRARY  
OF THE  
UNIVERSITY of ILLINOIS.

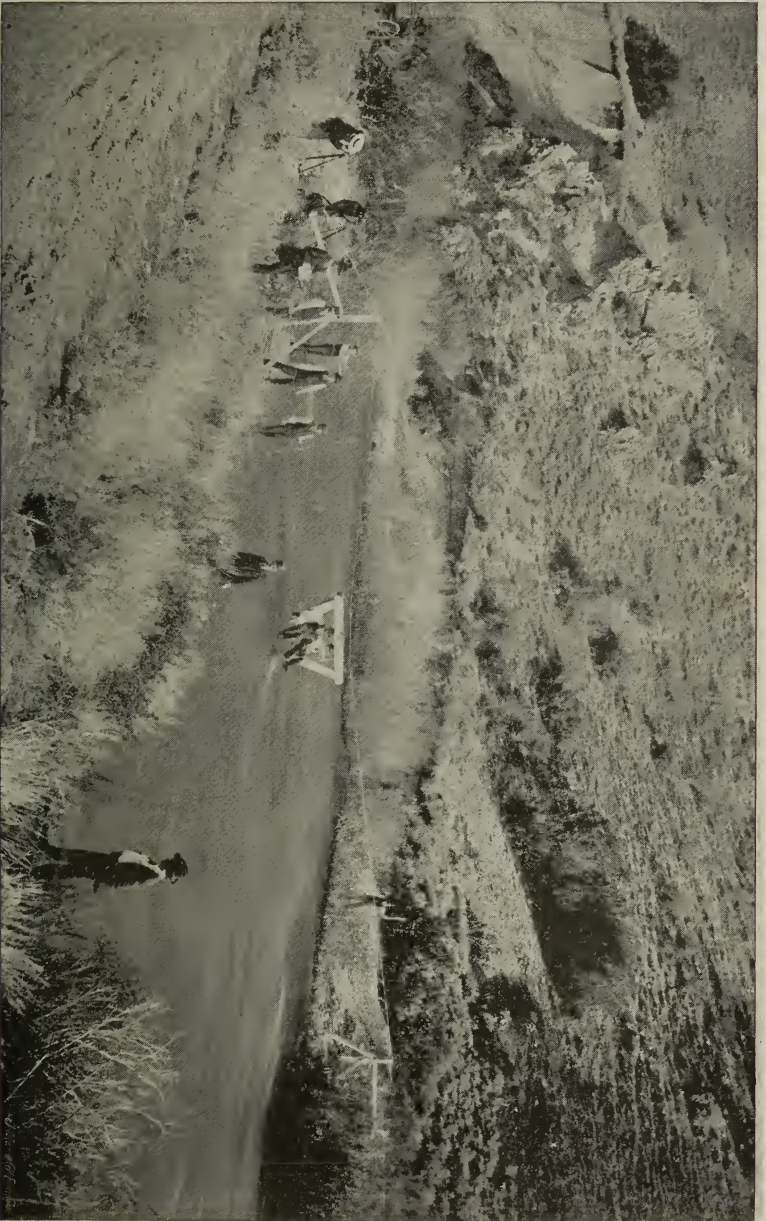




TYPE WRITING AND STENOGRAPHY

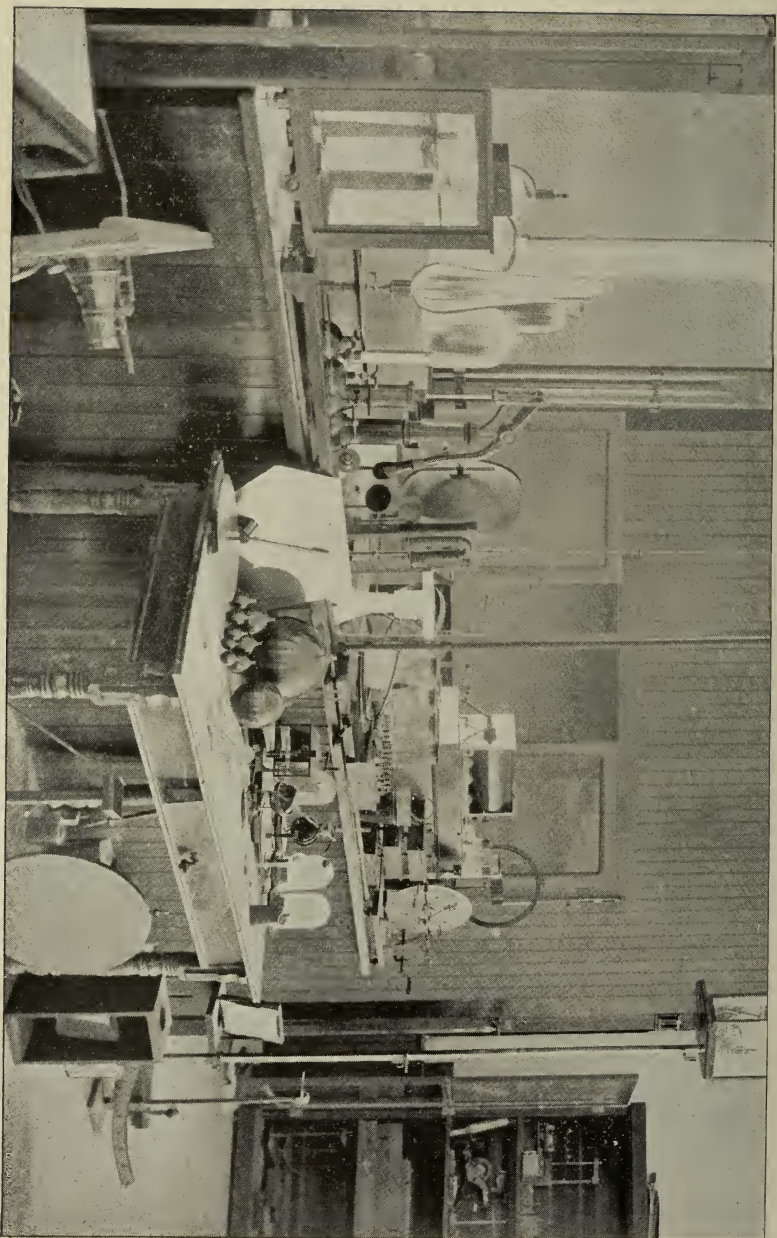


COMMERCIAL ROOM.



HYDROGRAPHIC SURVEYING





PHYSICAL LABORATORY.



FORGE AND FOUNDRY.

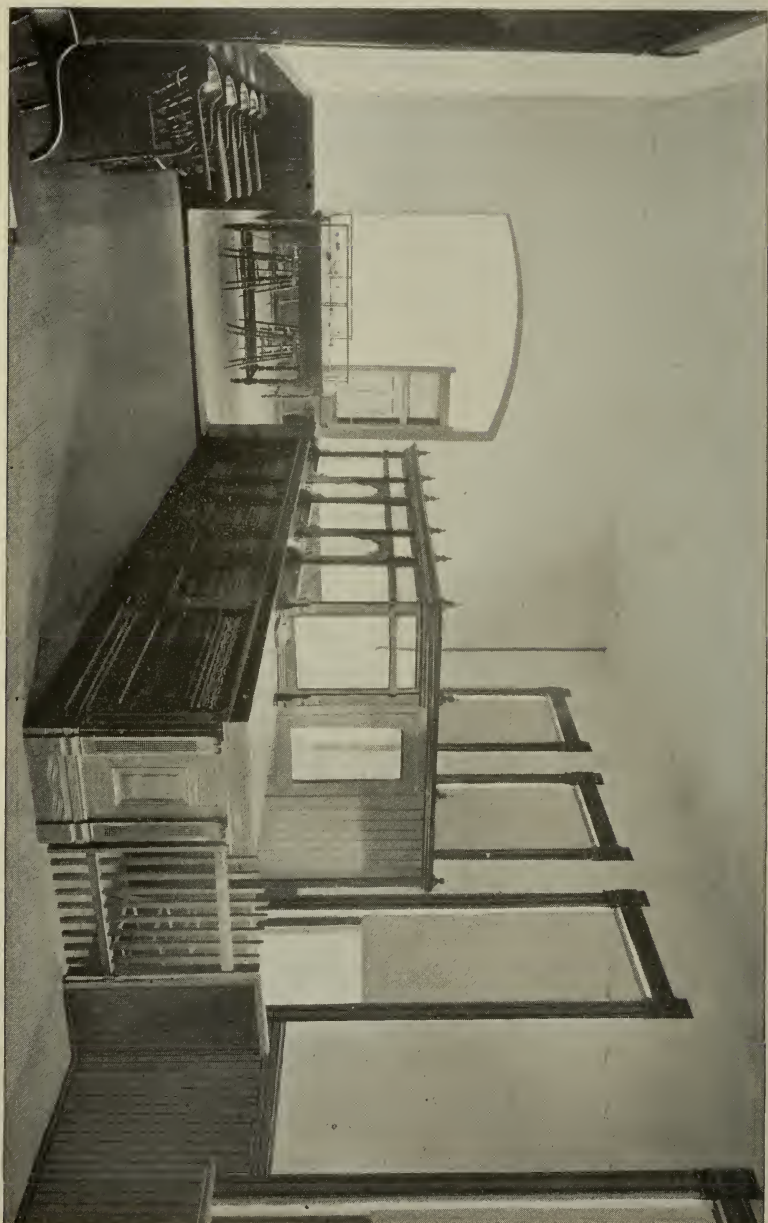




MACHINE SHOPS.

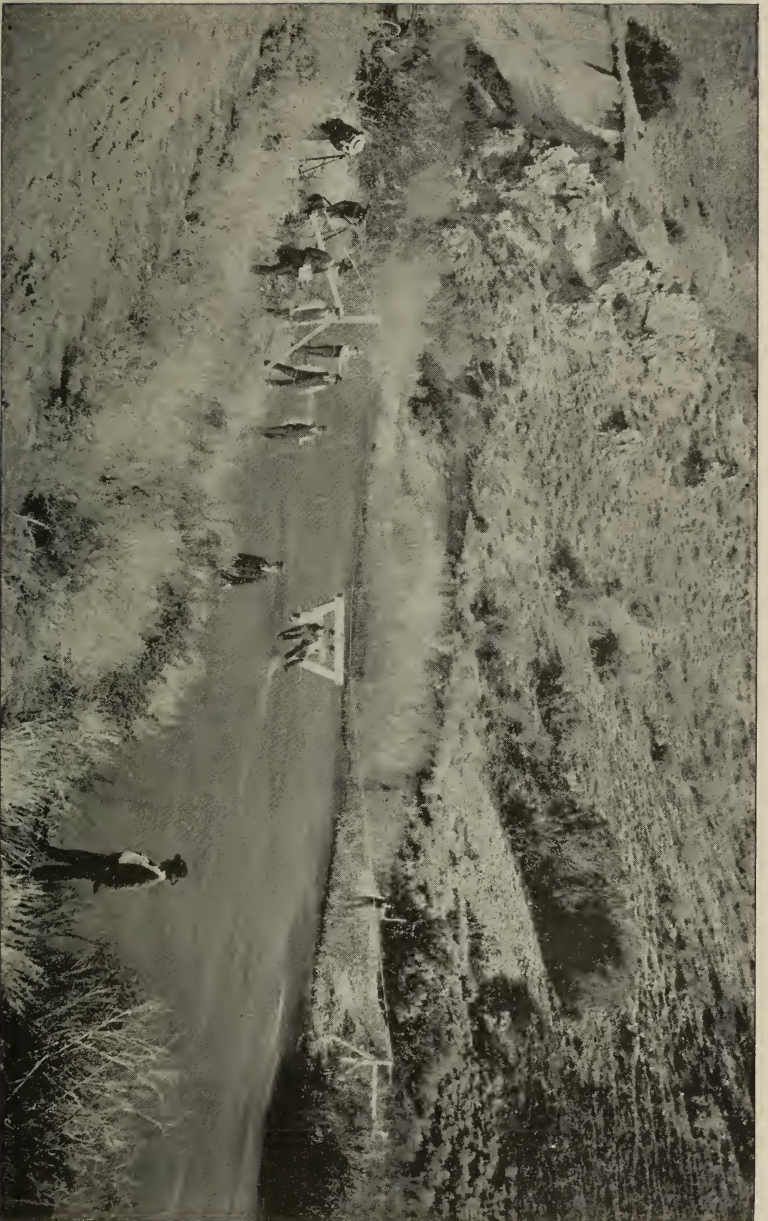


TYPE WRITING AND STENOGRAPHY

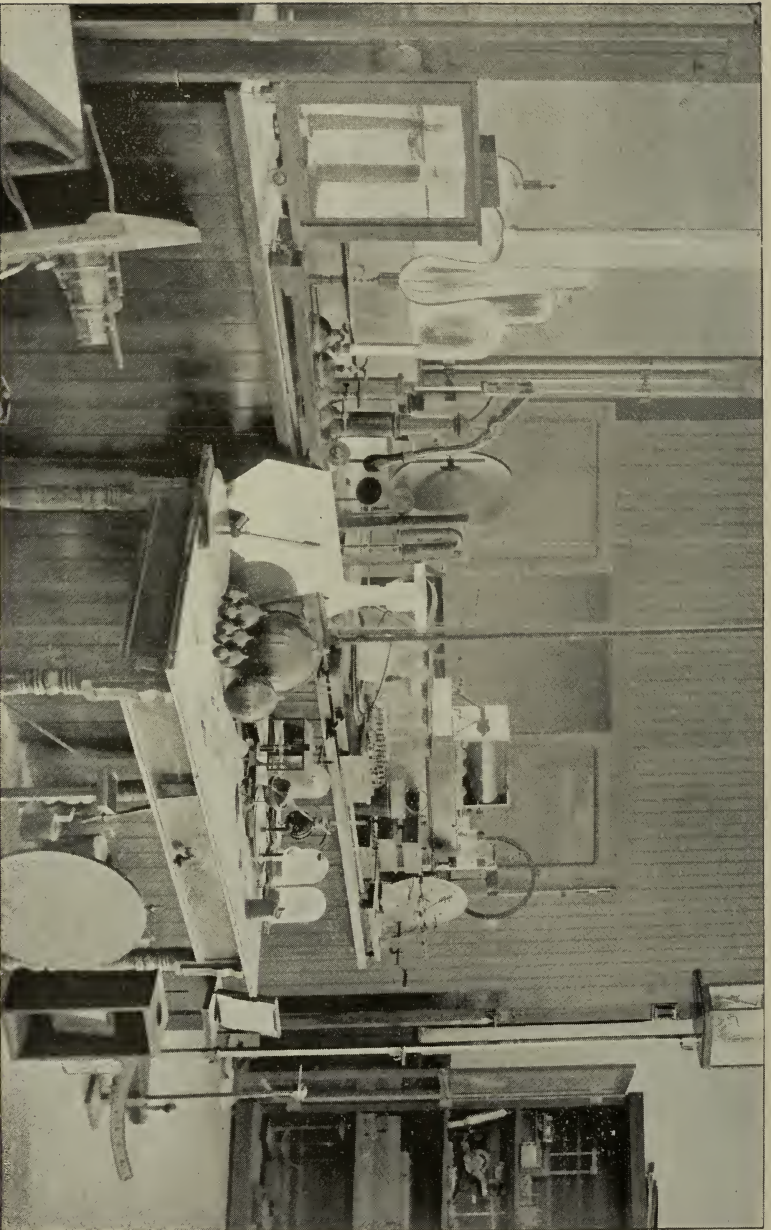


COMMERCIAL ROOM.





HYDROGRAPHIC SURVEYING



PHYSICAL LABORATORY.

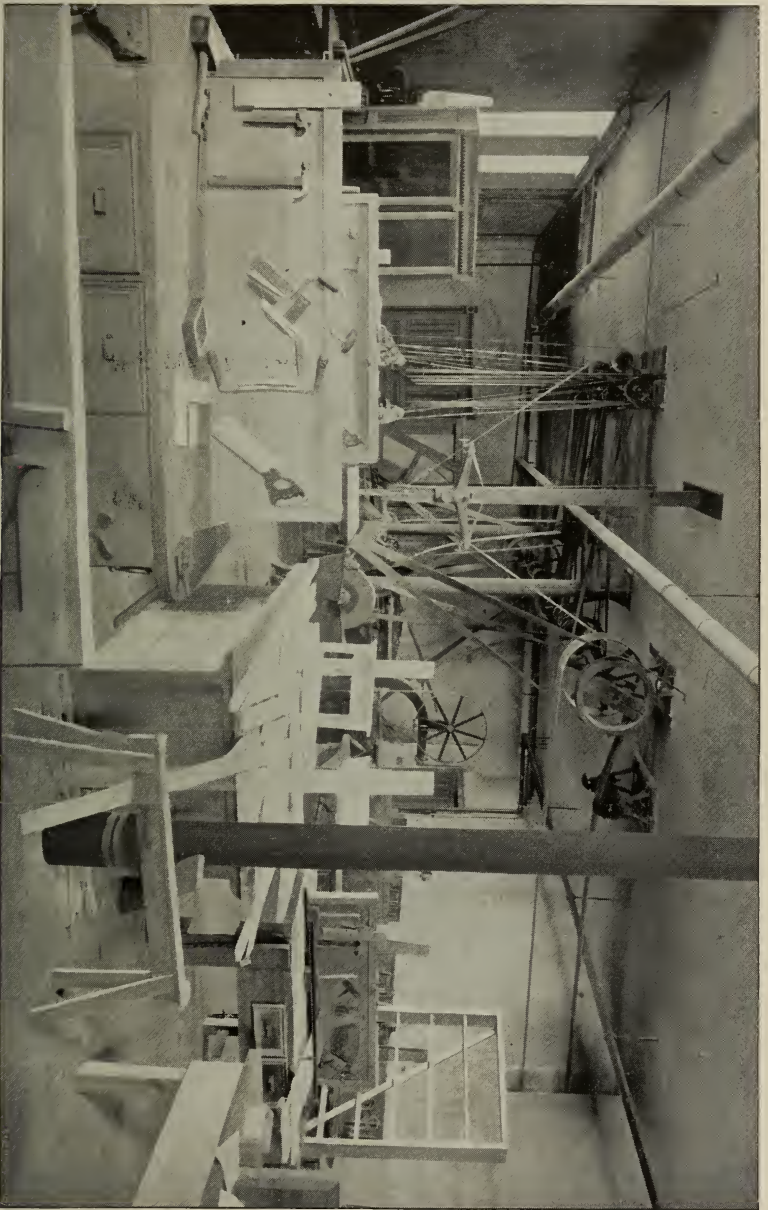




FORGE AND FOUNDRY.

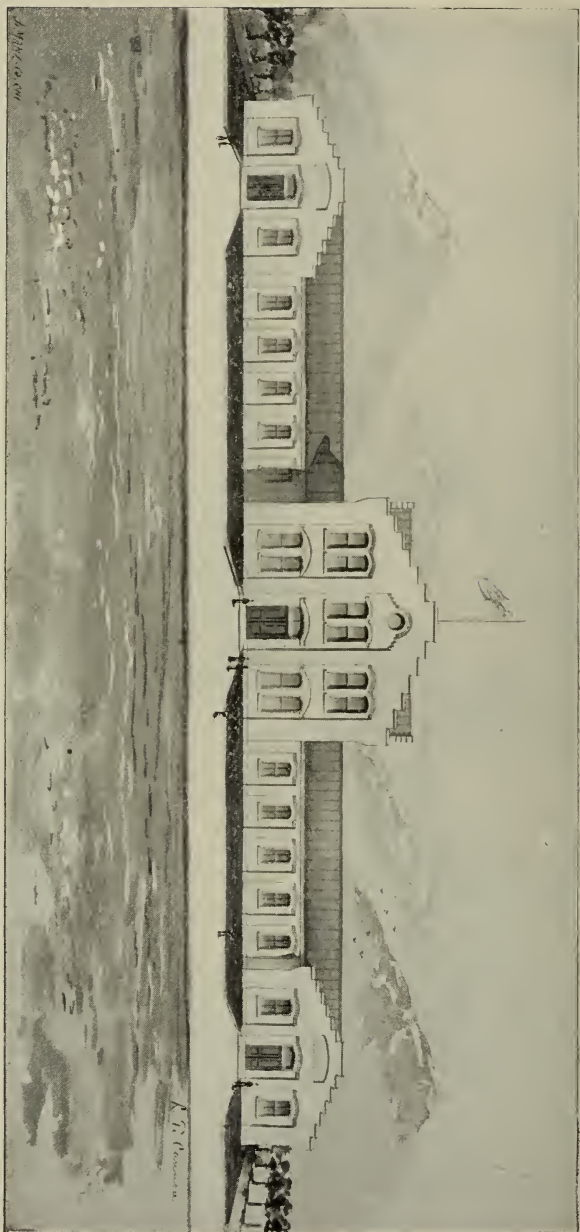


MACHINE SHOPS.



WOOD-WORKING SHOP.



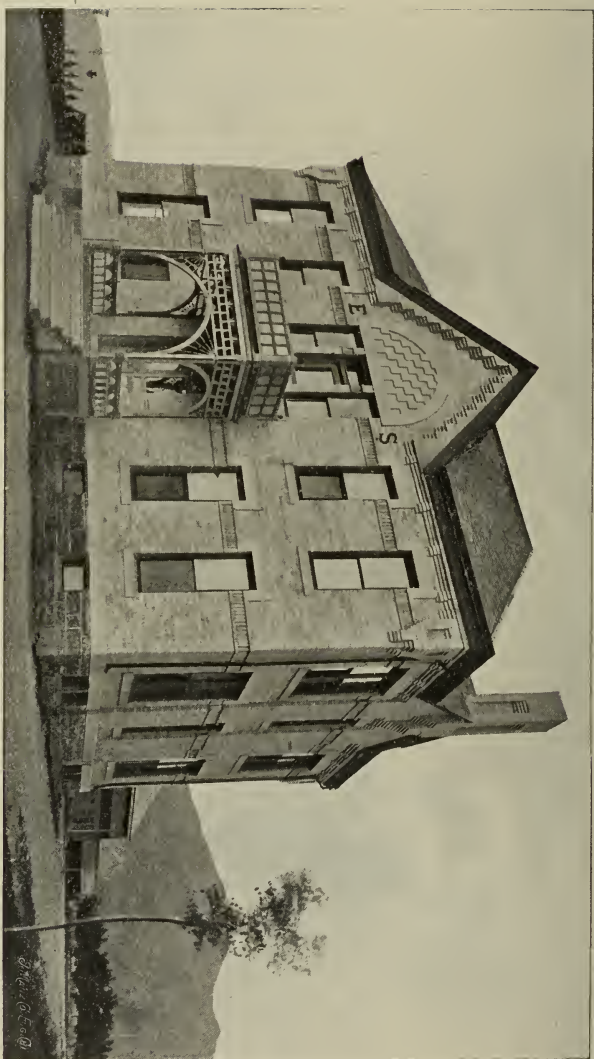


MANUAL TRAINING BUILDING.



RESIDENCE OF THE PRESIDENT.





EXPERIMENT STATION BUILDING.

1/10/08 27-CH



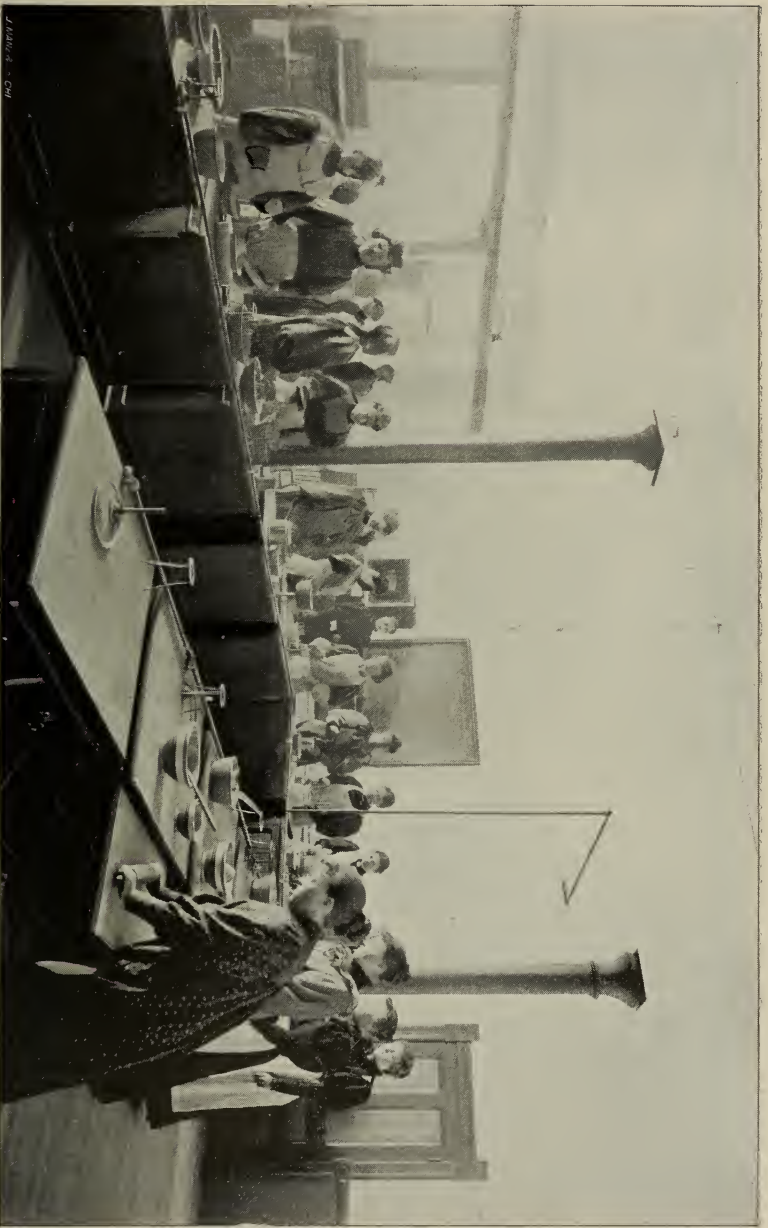
SECTION OF AUDITORIUM.



SEWING ROOM.



J. H. H. - CH

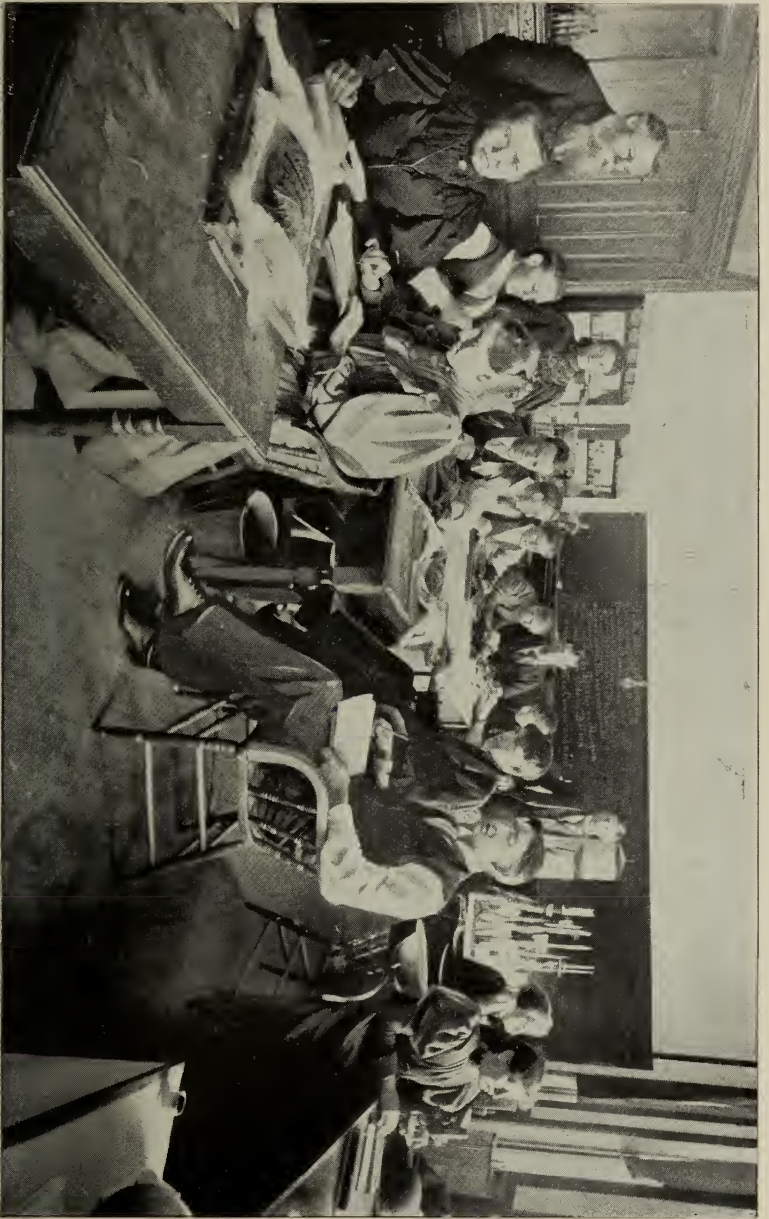


KITCHEN.

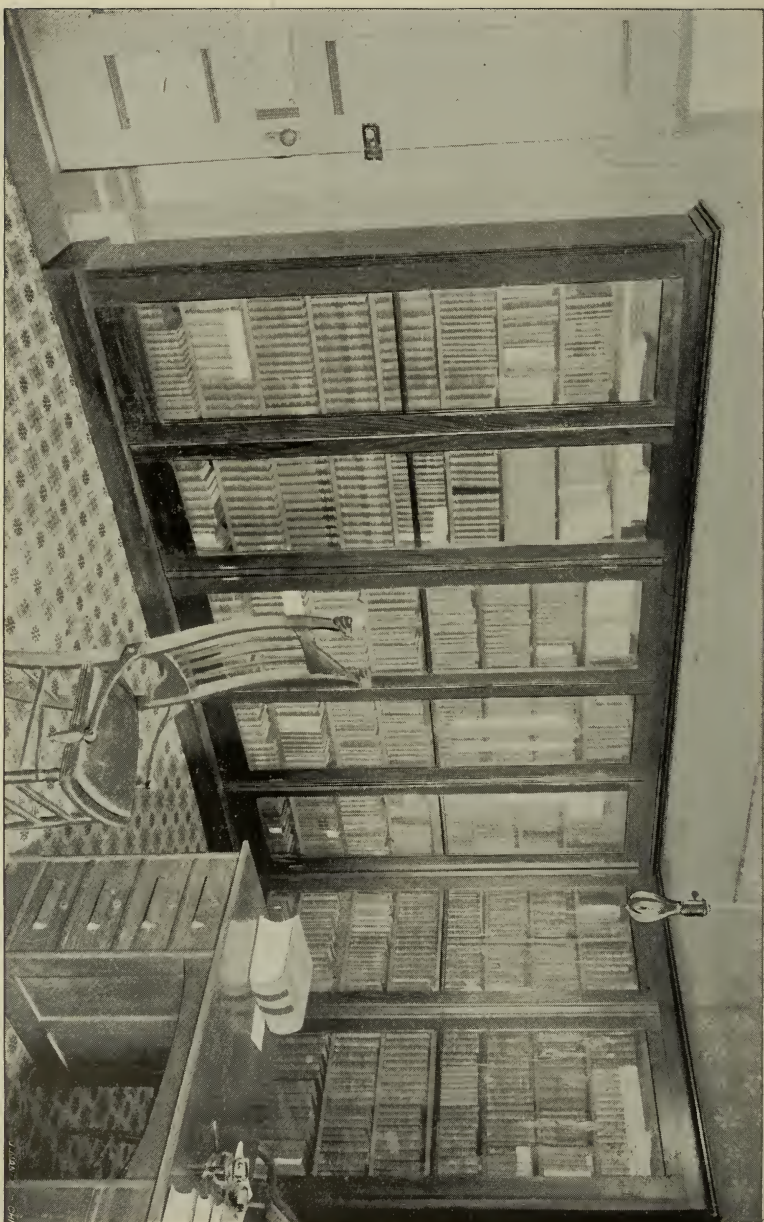


INTERIOR OF GREEN HOUSE.



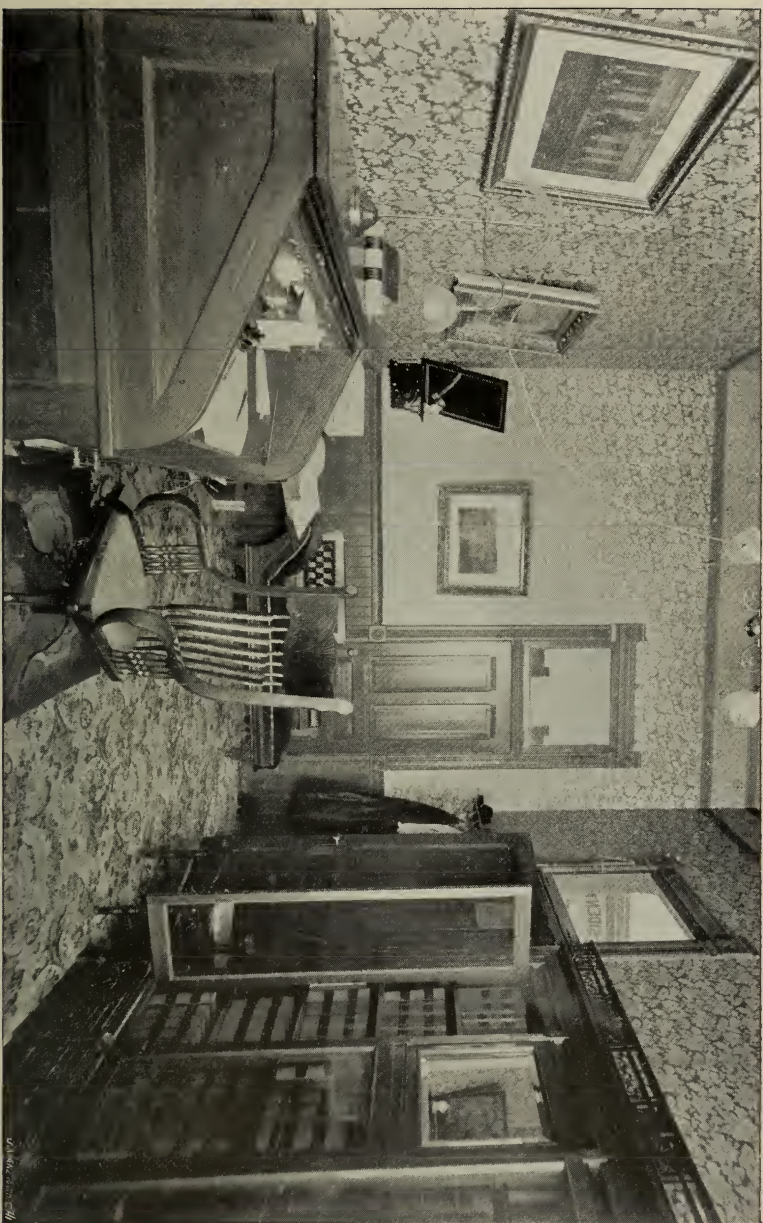


BIOLOGICAL LABORATORY.

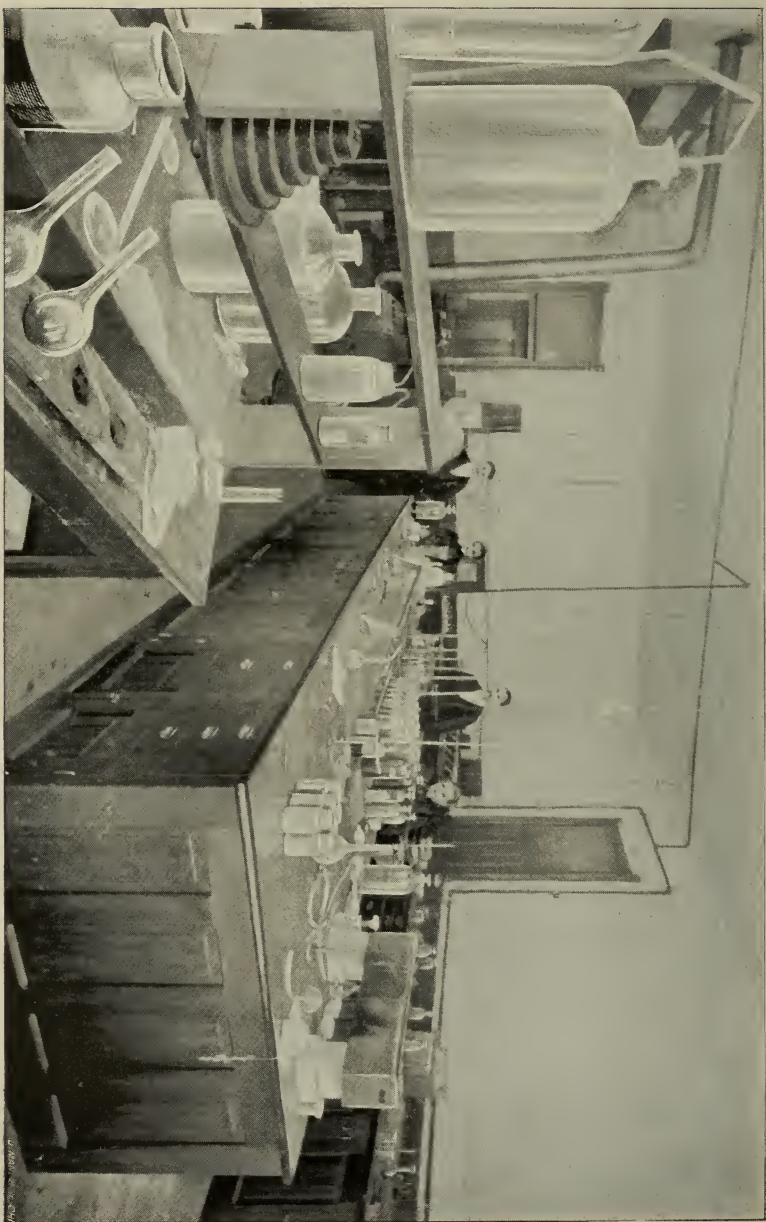


SECTION OF ENGLISH LIBRARY.

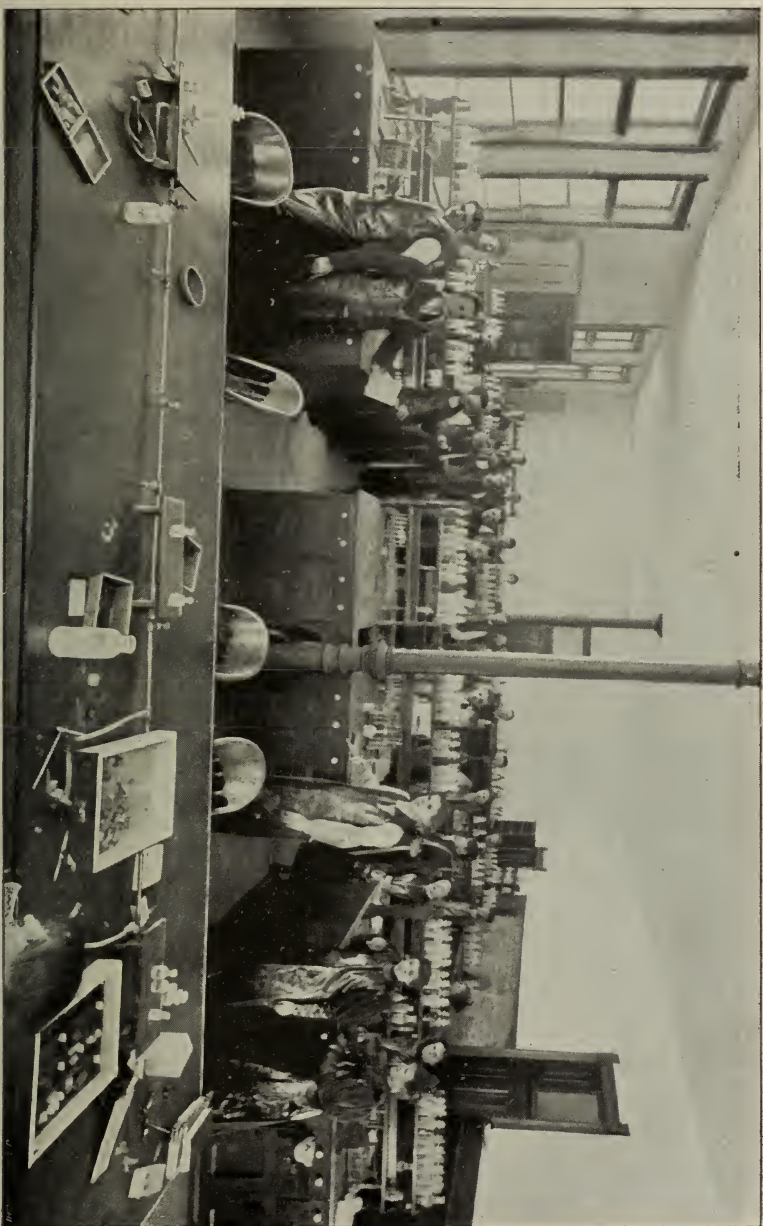




PRESIDENT'S OFFICE.



EXPERIMENT STATION CHEMICAL LABORATORY



CHEMICAL LABORATORY

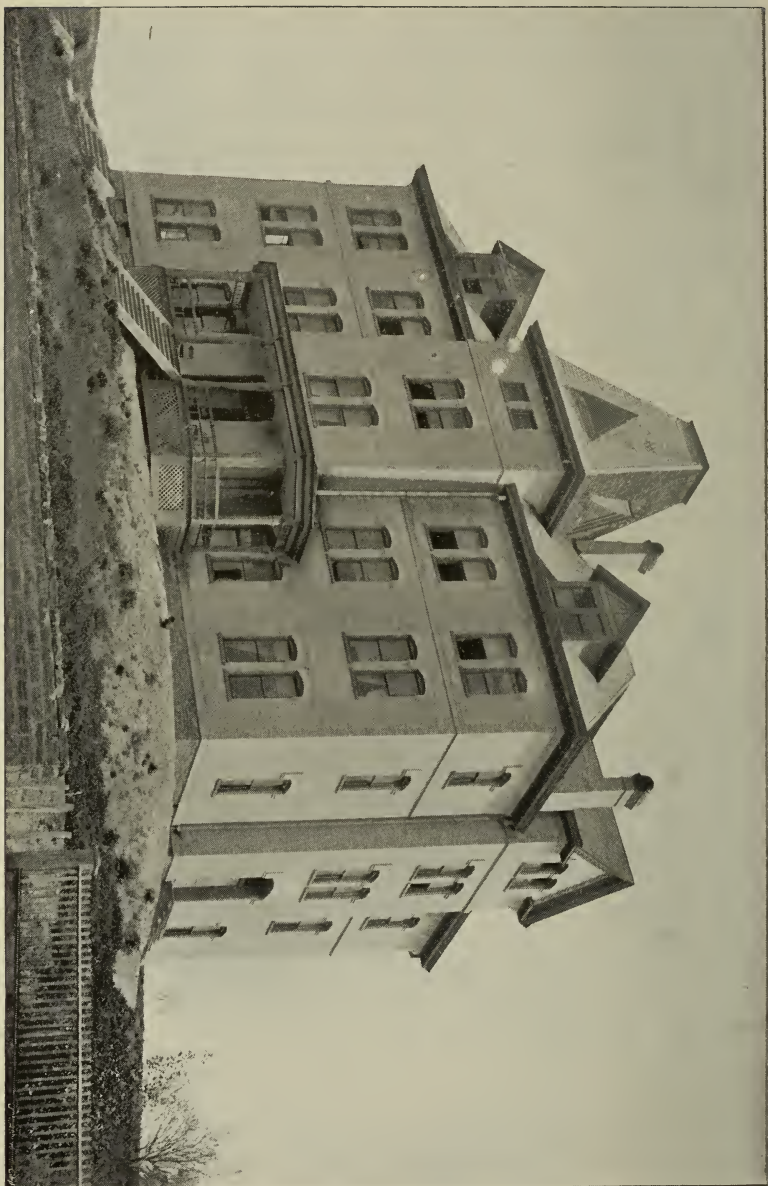




DAIRY



MODEL BARN.



BOARDING HOUSE.



II. STOCK FEEDING. A portion of the senior year is devoted to a study of the principles underlying the profitable feeding of farm animals. The composition and requirements of animal bodies, the chemical composition of foods necessary to supply these wants, the general laws of animal nutrition and the chemical action and values of the different kinds of food are discussed. The German Standard Rations are given thorough study, special work being done in compounding Utah foods. The student calculates the nutritive ratios, showing in what proportions the several foods may be used to make properly balanced rations for the different purposes of feeding, without the loss of more than a small percentage of any of the nutrients. A consideration of the proper foods for each class of animals, whether fed for labor, growth, milk, or meat production, is made prominent. The progress and results of the feeding experiments at the various Agricultural Experiment Stations are also carefully reviewed and discussed.

PROF. FOSTER.

III. AGRONOMY. During the spring term of the senior year the following sub-divisions of this subject are taken up:

1. *Soils*: Their origin, composition, physical and chemical properties, classification, amelioration, and relation to climate; the general management of different soils and sub-soils with their relation to successful crop production.

2. *Manures*: General principles relating to the use of manures; natural and artificial manures; the sources and composition, differences in character, and the value of liquid and solid manures of different animals for different purposes; handling and preservation of natural manures; application of manures to different soils and for various crops; reclamation of alkali soils and worn out soils; preservation of original soil fertility.

3. *Farm Crops*: Their history, uses, composition and adaptability to climate, the cultivation, harvesting and preservation of different crops; the principles of rotation; the system of rotation best suited to this state, taking into consideration the distribution of labor, the production of manure, and the extermination of weeds; summer fallow; the management of meadows

and pastures and the best kinds of tame grasses for the State as shown by experiments at the Station and in other parts of the State; tillage as a means of conserving soil moisture.

PROF. FOSTER.

#### IV. ANIMAL INDUSTRY.

1. *Breeds of Live Stock*: This includes the history and description of the different breeds of stock found on the farm, their origin and development into the specialized animals of today; the effect of climate and management on the animals, and their adaptability to various localities and purposes.

2. *Breeding of Live Stock*: This deals with the law of reproduction heredity, reversion, cross-breeding, in-breeding, variation, selection; period of gestation, pedigree, etc.

3. *Management of Live Stock* includes a practical application of the principles of breeding, with a full description of the methods of caring for the different classes of live stock from birth till final disposition.

4. *Judging of Live Stock or Animal Exterior* aims to put in practice the knowledge gained in the class room; the students tell from exterior points the relative values of the animals for special purposes, and as far as possible give reasons for the decisions rendered.

PROF. LINFIELD.

V. DAIRY HUSBANDRY. Dairying, as taught, deals principally with milk, its care and manufacture both in the factory and dairy. The farm problem of milk production is discussed under Animal Industry.

1. *Milk*: The elaboration, composition and fermentation of milk; the testing of milk, with a description of the methods used in paying for milk by test and in determining the worth of milk. A brief outline is also given of the fermentation of milk, or bacteriology as applied to milk and dairy products.

2. *Buttermaking*: The different methods of creaming milk and getting the best results, are described; the handling and ripening of the cream, churning, salting, working, packing and marketing the butter.



## AGRICULTURAL COLLEGE OF UTAH.

3. *Cheesemaking*: Cheddar cheesemaking is described; the making of a uniform product and dealing with practical difficulties are fully illustrated; a brief description is also given of the manufacture of other kinds of cheese, particularly of such kinds as may be made in a home dairy.

4. *Factories*: Factory organization; the building, equipment and management of factories are fully treated.

5. *Practical Dairying*: The college dairy is equipped with the best modern apparatus for practical dairy work, and from 1,300 to 3,000 pounds of milk are handled daily; factory and farm dairy methods are illustrated, and the student becomes familiar with all phases of dairy work by actual practice in the dairy, the aim being to familiarize him with the best methods of practice as discussed in the class room.

PROF. LINFIELD.

VI. IRRIGATION ENGINEERING is intended to include the mechanical principles of draining and irrigating farm lands; it occupies five hours weekly for about four weeks in the second term of the senior year of the long course, or of the second year of the short course.

PROF. SWENDSEN.

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## BIOLOGY.

PROFESSOR LANGTON.

I. ANATOMY AND PHYSIOLOGY. Lectures and recitations are given on human and comparative anatomy, illustrated by models, anatomical preparations, diagrams and dissections. The lecture course is supplemented, both in the winter and spring terms, by laboratory work, consisting of dissections of small animals; the study of osteology and a consideration of the elements of histology are also undertaken.

II. GENERAL BIOLOGY. The course of lectures on general biology and the accompanying laboratory work cover the usual range of topics. The difference between living and dead

matter is reviewed, and such subjects as protoplasm, cells, tissues and organs are considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life are taken for illustration and for examination in the laboratory.

III. ZOOLOGY. A comparative review is given of the various functions concerned in animal life and their adaptability to the environments of the different classes of animals. The classification of the animal kingdom; the distribution of animals according to place and time, their present location and their primeval forms are considered.

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## BOTANY.

PROFESSOR HEDRICK.

I. STRUCTURAL BOTANY. Work in structural botany is required of the sophomores in the Agricultural Course, and of juniors in the General Science, Domestic Arts, and Commercial Courses. The text book used is Gray's *Lessons in Botany*. The aim is to help students to become familiar with the higher plants, the terms used in describing them, and their classification. Students are provided with microscopes and dissecting instruments for laboratory work, but must furnish their own collecting and mounting outfits. Fifty mounted and named plants are required. The work is given five hours a week in the third term.

II. PHYSIOLOGICAL BOTANY. Juniors in the Agricultural course and seniors in the General Science and Domestic Arts Courses spend three hours a week in recitation and four hours a week in the laboratory during the first term in Physiological Botany. Plant anatomy, and the functions, growth and nutrition of plant organs are studied. Bessey's *Essentials in Botany* is used as a text book. All laboratory equipment and materials are furnished.

## CHEMISTRY.

PROFESSOR WIDTSOE AND MR. STEWART.

I. ELEMENTARY CHEMISTRY. This is a study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions, and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take the course in elementary practical chemistry.

II. ELEMENTARY PRACTICAL CHEMISTRY. This course supplements the preceding course and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other; their reactions are verified, and the facts and theories of the lecture room are tested by experiments.

III. QUALITATIVE ANALYSIS. This course runs parallel with, and supplements the descriptive study of the metals and their compounds. Under the direction of the instructor in chemistry the students apply with their own hands the re-agents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view. Laboratory work occupies six hours a week for thirty weeks.

IV. QUANTITATIVE ANALYSIS. This is mainly a laboratory course, giving the student practice in the typical methods of proximate and ultimate quantitative chemical analysis. It aims also to give, in familiar talks, a due appreciation of the importance of accuracy, and of the relation of quantitative analysis to theoretical chemistry. After the necessary introductory practice, samples of waters, soils, ores, agricultural products, and foods are analyzed and reported upon. The work of the Experiment Station chemical laboratory furnishes a good opportunity for the study of methods of analysis.

MR. STEWART.

V. ORGANIC CHEMISTRY. This course consists of a brief survey of the more important reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives, together with a full discussion of the nature and influence of molecular structure. No laboratory work is required; but opportunity is given the student to prepare, and he is urged to prepare, a number of organic compounds, thus making himself familiar with the processes of oxidation, reduction, substitution, and synthesis.

MR. STEWART.

VI. AGRICULTURAL CHEMISTRY. This course consists of lectures and assigned readings from the best available literature on the subject. The student will be required to prepare brief essays on given subjects from time to time. The aim is to make the student familiar with what is known of the composition of the plant, and of the relation of the soil and the atmosphere to plant development, together with some of the unsolved chemical problems of agriculture. Some attention will also be given to the chemistry of animal nutrition and dairy products.

MR. STEWART.

VII. MINERALOGY AND ASSAYING. A systematic study is made of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and determinative mineralogy; and in connection with the former, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

VIII. CHEMISTRY OF FOODS. This is a laboratory course, and aims to make the students familiar with the constituents of the common foods. By the aid of the microscope and chemical re-agents, flour, bread, meats, peas, beans, spices, milk, and other dairy products, and various vegetables, are separated into their components, and each component subjected to special tests. The study has an important bearing on the science of nutrition.

## COMMERCIAL BRANCHES.

PROFESSOR FARIS.

I. BOOKKEEPING. This subject includes the science of account-keeping, practical bookkeeping, business practice, business customs and auditing and experting of accounts. It is the major subject in the commercial course and runs through two years.

1. SCIENCE OF ACCOUNTS. The course of instruction in the science of accounts embraces a careful study of the fundamental principles of bookkeeping. The principles of debit and credit are thoroughly developed by means of repeated drills and lectures. Journal and day book entries are given careful attention. Much care and practice in penmanship, ruling, spacing, arrangement of work, etc., with special reference to figures, is exacted, thus giving students in addition to principles on which the work is based, that manual training necessary for neat, accurate and rapid bookkeeping.

2. PRACTICAL BOOKKEEPING. In this work a regular laboratory method is used. Each student assumes the responsibility of a bookkeeper and actually keeps books according to the shortest and most approved methods in various kinds of business; such as grocery, general merchandise, jobbing, commission, etc., including a thorough course in corporation work, College currency, bills of exchange, notes, checks, deeds, leases, mortgages, receipts, invoices and all other forms of commercial paper incident to the several kinds of business are used. All banking is done directly with the college bank.

The work is largely individual and so arranged that no two students arrive at the same result. Every step in the progress of a student is carefully examined, and by a rigid system of checking accuracy is exacted.

3. BUSINESS PRACTICE. Students form a business community and each one not only keeps books but conducts and manages a business. All transactions are made either by correspondence or face to face with members of the class. Well



furnished offices are run for the accommodation of the business circle. Students conduct the several offices, first as bookkeeper and then as manager.

Careful attention is paid to the laws of Utah, and all business forms and transactions are made to conform to the statute of the state. Among other features a corporation is organized and conducted as a General Mercantile Co., complying strictly with the laws of the state governing such institutions.

4. BUSINESS CUSTOMS. The fundamental principles of bookkeeping are here applied according to modern ideas of business, with its complex and exacting requirements. The subjects of banking, securities, exporting and importing, railroading, business correspondence and every day business transactions, are carefully examined from a practical standpoint. Blanks and business forms of many kinds are placed in the hands of students for discussion and reproduction.

5. AUDITING AND EXPERTING OF ACCOUNTS. The duties, qualifications and requirements of expert accountants, are carefully studied. Books suitable for different kinds of business with the most approved ruling, special columns, etc., are discussed. Much practical work is given in opening and closing sets of books used in various business enterprises.

II. COMMERCIAL CALCULATIONS, This consists of a drill in percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all problems that the average business man is called upon to solve. Short methods are studied, and practical devices presented.

III. HISTORY OF COMMERCE. This work is done by recitations and lectures. The student makes a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He notes the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; he learns how markets are created and controlled; how waterways and railways afford a ready means of transportation and

influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics are gathered showing the magnitude of the world's production. Practical commercial problems of the day are discussed in class.

IV. POLITICAL ECONOMY. The economic laws of trade, the general principles of Political Economy technically applied to commerce, and general business methods, are carefully examined.

PROFESSOR THOMAS.

V. COMMERCIAL LAW. This embraces a study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contracts, including agency, partnership, corporation, bills, notes and checks, purchase and sale of personal property, guarantee or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, [telegraphic communication, patents, copyright, trade marks, real estate conveyances, and the business and legal forms that are used to carry on trade.

PRESIDENT TANNER.

VI. STENOGRAPHY. This is elective with bookkeeping in the senior year of the four years commercial course and in the second year of the short course. Graham's system of stenography is taught. The class is given instruction one hour daily throughout the year.

PROFESSOR DRYDEN.

VII. TYPEWRITING. This is required of senior students in the four year commercial course and of the second year students in the short course. Three different kinds of machines are used, having the "universal" keyboard. One hour a day is devoted to practice throughout the year.

PROFESSOR DRYDEN.

## DOMESTIC ARTS.

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### *I. HOUSEHOLD ECONOMY.*

MRS. COTEY.

EXPLANATION. The course for young women gives the same general training in English, German, Mathematics and Science that is given in the other courses, together with special studies adapted to woman's work.

1. LAUNDRYING occupies the fall term and consists of practical work alternating with lectures. The practice includes plain white washing and removing stains, clear starching, best methods of doing up fine mull, of ironing shirts, cuffs and collars, washing flannels, and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used, and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, blueings and starch, are discussed in their scientific and practical relations to laundry work.

2. FRUIT WORK includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chemical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human system; the causes of fruit fermentation, and a study of antiseptics.

3. COOKING LECTURES treat of marketing and the selection of food; general rules of measuring and mixing; best methods of baking and boiling; deep and shallow frying; the general chemistry of cooking; carving and serving of food.

4. COOKING PRACTICE includes all kinds of plain and some fancy cooking, covering in a general way all the subjects with which a housekeeper in moderate circumstances needs to be

familiar. Demonstration lessons are given at various times throughout the term on subjects difficult of treatment in the general practice. A three-course lunch is served daily during the winter term. Members of the class take turns in presiding as hostess at the table, carving and serving plates and looking after the needs of the guests; they also take turns in waiting upon the table. The confidence and skill thus acquired are invaluable to them.

5. **SCIENCE OF NUTRITION** is a study of foods, their chemical composition, characteristics, digestibility; the way in which they nourish the body; the best foods to be given in certain diseases; the best food for young children; effect of age, climate and occupation on amount and kind of food required. In connection with these lectures, about forty lessons are given in preparing food for the sick.

6. **HYGIENE** treats of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instructions especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick.

7. **HOUSEHOLD MANAGEMENT** consists of lectures on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; duties of mistress and servants; entertainment of guests, and many other subjects of interest to the home-maker.

8. **AESTHETICS** is the science of taste and beauty. The course includes talks on fine china, pictures, furniture, decorations for the home, harmony of colors, taste in dress and kindred subjects.

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## II. SEWING.

MISS BOWEN.

**EXPLANATION.** Besides the general advantages derived from industrial education, the object of this branch is to give a practical training in the sewing which every household requires.

Neatness of work is insisted upon. The student provides material and makes her own garments.

1. **PIECE SEWING.** Practice is given first in the various hand stitches used in muslin and woolen goods; overhanging, running, hemming, hemstitching, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, French hem on damask, etc.

2. **DRESSMAKING.** At least two muslin garments are made. A gown is cut out, basted, and entirely made, by the student.

3. **DESIGNING, CUTTING AND FITTING.** Instruction is given by talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to make drawings of the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

4. **FANCY WORK.** This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn-work, jeweled embroidery, and modern lace-making.

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## DRAWING.

PROFESSOR ROBINSON.

I. **FREEHAND DRAWING.** This consists in lessons and practice, perspective sketching from casts, and simple studies in light and shadow. It is required of all freshmen, the exercises coming five times a week during the first term. It is made to include industrial design.

The junior students in the Domestic Arts Course have special training in designing and elementary art, suitable for young women.

II. **MECHANICAL DRAWING** is taught during the entire junior year. Students in this class are required to make working drawings, both detail and assembly, from measurement. Simple designs illustrating the principles taught in the class in mechanism



form a prominent feature. Neatness and accuracy of execution determine largely the standard of marking.

III. DESCRIPTIVE GEOMETRY is confined to the representation of problems, and the solution of problems relating to geometrical magnitudes in space. It is made to cover orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and shadows; construction and maps; solutions of problems relating to geometrical magnitudes.

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## ELOCUTION AND READING.

MISS MOENCH.

The object of this department is to make good readers and fluent speakers. Particular attention is paid to orthoepy and the definitions of words.

I. READING. This study is required of all first year sub-freshmen in daily recitation. The best dictionaries are in use, and students have constant practical drills in orthography, phonetic spelling, marking and defining words, and articulation. The principal aim in the work however is to develop easy, natural readers who will be able to express the thought of the author in a clear and impressive manner. The work of the past year consisted of a study of *Julius Cæsar*, *The Merchant of Venice* and miscellaneous readings.

II. ELOCUTION. The work in this study taken by the second year sub-freshmen, is a continuation of that done in the first sub-freshman year, also practical work in recitation and impersonation. Each student is expected to learn and present a recitation to the class once each month or as often as the number in the class or division will allow.

## ENGINEERING.

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### *I. CIVIL ENGINEERING.*

PROFESSOR SWENDSEN.

1. **HYDRAULICS.** This includes a discussion of the fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water wheels and pumping engines. Winter and spring terms.

2. **IRRIGATION SYSTEMS.** Includes the location, grades, cross sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; windmills, artesian wells, etc. Winter term.

3. **ELEMENTARY SURVEYING** embraces the adjustment and care of instruments, and a treatment of the general methods of farm, city, railway, topographical and hydrographic surveying. The practical work in the field and drawing room will receive particular attention. Fall and Spring terms.

4. **HIGHER SURVEYING** includes a treatment of triangulation systems, construction of stations, measurement of base lines, determination of the meridian, and the general application of precise methods in field and drawing room practice. Fall term.

5. **ROADS AND PAVEMENTS.** Country roads are discussed along with highways, their location, construction and maintenance; the paving of city streets, and sidewalks; the materials used and the mode of construction.

6. **RAILROAD STRUCTURES** will treat of the parts of the road requiring special designs, such as masonry, retaining walls, trestles, tunnels, watch towers, water supply, culverts, etc. Winter term.

7. **MUNICIPAL ENGINEERING** will deal with sources and

methods of city water supply, problems and plans of sewerage, systems and methods of sewerage disposal, and questions of rapid transit and light. Spring term.

8. **THESIS.** This may consist of some original engineering design, a paper on some branch of civil engineering, or a discussion of some past achievement in the profession. It is expected to be a somewhat exhaustive treatment of the problem considered.

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## *II. MECHANICAL ENGINEERING.*

### PROFESSOR JENSON.

1. **ELEMENTS OF MECHANISM.** This includes a consideration of the various forms of motion and its production; link motions and their modification as used in machinery; cam and wiper outlines; wheel trains and aggregate motions; design and construction of gear teeth, mechanism of special machinery. This subject deals with the purely geometrical relations of machinery, rather than with the form and design of articulating parts.

2. **METALLURGY OF IRON AND STEEL.** This embraces a study of the principal iron ores and their reduction according to modern methods, and the processes employed in the preparation of the iron into the various forms used for general construction purposes.

3. **STEAM ENGINEERING.** This begins with a study of the various forms of valve gears now in common use, which is followed by the study of the various forms of engines; the principles of thermodynamics according to the mechanical theory of heat and its application to the steam and other vapor engines; boilers and boiler design and construction; also methods of testing steam engines and steam boilers. A careful study is made of such data as have been secured from reliable tests in lieu of making actual tests.

4. **APPLIED MECHANICS.** A general discussion is given of the relation of forces and their effects in the production of motion; the derivation and application of formulæ, based upon

the strength of materials as determined from actual experiment on full sized pieces, and used in determining the size of parts to be used in all engineering structures; the constructive qualities of the various woods and metals used in engineering practice. Much stress is laid upon this subject as being the chief corner stone in the foundation of an engineering profession.

5. **DYNAMICS OF MACHINES.** The general effects of the inertia of the moving parts of machines are discussed.

6. **POWER MEASUREMENT AND TRANSMISSION.** This is a study of theory of friction and suitable co-efficients for use with various materials and kinds of joints; friction brakes and dynamometers; lubricators and their uses; transference of power by means of rigid contact, rope and belt driving, compressed fluids, and electrical transmission. Power absorbed in driving the various machines in the shop.

7. **MACHINE DESIGN.** In machine design each student is required to make a certain number of designs carrying out the principles of applied mechanics and dynamics of machines in all calculations. Boilers, parts of engines, pulley and gear shafts, and hangers, form suitable examples for this work. The class work consists of lectures and drawing.

8. **THESIS.** In general a graduating thesis in this course should consist of the execution of an original design with a descriptive dissertation, or a discussion of some current engineering problem, or the result of some original research, experimental or theoretical.

For a description of a course in hydraulics, municipal and irrigation engineering, materials of engineering, applied electricity, see "Civil Engineering."

For a description of courses in mechanical drawing and descriptive geometry, see "Drawing."

For shopwork see "Mechanic Arts."

For other courses, see "Physics and Mathematics."

## ENGLISH AND GERMAN.

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### I. ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR MACEWAN.

1. ENGLISH GRAMMAR. The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, special attention being given to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors. This work occupies the fall term.

2. ELEMENTARY RHETORIC. This includes the principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a week, mostly reproductions, illustrating the laws of description and narration. The narrative poems from the textbook in literature, with the last class, *British Masterpieces*, and *The Iliad* or *Odyssey*, furnish matter for reproduction and study in versification. This work occupies the winter term.

3. ADVANCED RHETORIC. Instead of more advanced work in the principles of style, the rules of description, narration, exposition and argumentation are studied; and to illustrate and enforce these, some masterpieces in each department are critically examined. Speeches of Burke and Webster furnish suitable material for the study of argument. Frequent oral and written exercises make the work entirely practical; during the last term debates, written and oral, are had on questions of general interest. Each student presents numerous written exercises. The work goes through the sophomore year, twice a week the first and third terms, and five times a week the second term.

4. LITERATURE. The first work in literature follows the elementary rhetoric, occupying the third term of the freshman year. It is a critical study of the short, complete classics—



essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts have been read:

Shakespeare's *Merchant of Venice*; Bacon's *Essays*; Milton's *L'Allegro*, *Il Penseroso*, *Hymn*, and *Lycidas*; Addison's *Sir Roger De Coverly*; Pope's *Rape of the Lock*; Gray's *Elegy in a Country Churchyard*; Goldsmith's *Deserted Village*, and *Traveller*; Burns's *Cotter's Saturday Night*, and some other poems; Wordsworth's *Ode on Immortality*, and narratives from *The Excursion*; Irving's *Sketch-book*; Tennyson's *Ulysses*, *Locksley Hall*, *Enoch Arden*; Dickens's *Christmas Carols*; Selections from Emerson, Lowell, Holmes, Longfellow and Hawthorne; the selections in Swinton's *Masterpieces*; Pancoast's *Representative Literature*; Painter's *Introduction*; Syle's *From Milton to Tennyson*, and *British Masterpieces*.

5. HISTORY OF LITERATURE. The second course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses, much of the study being reported in essays. This is the work of juniors and seniors for the first term.

6. LITERATURE. MASTERPIECES. The last term of the senior year is given to the study of longer masterpieces. Ordinarily all the important forms of literature have been laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One week is usually given to each piece selected. The work of the class-room is largely a report of students, either oral or written, on what they have done by themselves. The following texts, changing somewhat from year to year, have constituted the course:

Shakespeare, two great tragedies, *Hamlet*, *Macbeth*, *Lear*, *Othello*; Webster, *Reply to Hayne*; Burke, *Conciliation with American Colonies*; Macaulay, *Essay on Milton and Addison*; Milton's and Carlyle's *Essay on Johnson*; Milton, *Paradise Lost*, I. and II.; *Samson Agonistes*; Carlyle, *Essay on Burns*, *Hero as Prophet*; Tennyson, *Princess*, or selected poems; Motley, *Peter the Great*, or Southey, *Nelson*; George Eliot, *Silas Marner*; Wordsworth, *Selected Poems*; Byron, *Childe Harold*; Goldsmith, *Vicar of Wakefield*; De Quincy, *Revolt of the Tartars*; Defoe, *Journal of the Plague*; Addison, *Spectator*; Browning, *Blot in the Scutcheon*, etc., or selected poems. The last class had, instead of masterpieces, a term's study of the poems of Tennyson.

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## II. GERMAN.

### ASSISTANT PROFESSOR ROBINSON.

This is the only foreign language taught in the institution, and is in four courses, three hours a week, during both the junior and senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the *Joyes-Meissner Grammar* and *Reading-book*, students are given such scientific reading material as will best equip them for using works of reference and the publications of scientific institutions and societies; or such selections from classic German literature as are adapted to awaken an interest and stimulate further reading. Dippold's *Scientific German Reader*; *Wilhelm Tell*, *Nathan der Weise*, *Egmont*,

*Hermann und Dorothea, Reisebilder, Ekkehart, Peter Schlemihl  
Das Kalte Herz, Soll und Haben.*

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## ENTOMOLOGY.

PROFESSOR HEDRICK.

The work in entomology is required of juniors in the Agricultural Course and of seniors in the General Science and Domestic Arts Courses. It consists of recitations five hours, and laboratory work four hours a week during the third term. Comstock's *Manual* is used as the text-book and guide for laboratory work. The students are expected to acquire a general knowledge of the structure and classification of insects, especially the common insect pests. Insecticides and methods of applying them are given some consideration.

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## GEOLOGY AND MINERALOGY.

I. MINERALOGY AND ASSAYING. A systematic study is made of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and determinative mineralogy; and in connection with the former, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

MR. STEWART.

II. GEOLOGY AND LITHOLOGY. A course is given in general and economic geology in which particular attention is given to dynamical and structural geology. Along with the occurrence of rocks, their mineralogical composition is also studied. The instruction is based on a text-book, but supplementary lectures are given. Weekly excursions give practice in geological field work and material for reports.

## HISTORY.

PROFESSOR THOMAS.

The chief objects of this study are the fixing of the principal great historical events in the memory, the training of the reason and the historic sense, and the cultivation of the taste for historical reading. While original sources cannot well be examined, considerable reference reading is required. For this purpose, the College library is better equipped in the department of historical literature, than in any other. A general textbook is used. Time is taken to compare conflicting statements of fact, and different interpretations.

I. GRECIAN HISTORY. The first period of study is given to Grecian history, some attention being paid to Oriental nations, especially to those events which influenced in a noticeable manner subsequent European nations. Most of the time is occupied with a study of the conflicting cities and States of Greece, their advancement in oratory, literature and the fine arts.

II. ROMAN HISTORY. Attention is then given to the history of Rome—her rise, rapid extension, wonderful vigor, the extension of her power, her fall and final extinction, the survival of her better qualities, and the gradual development of the nations of modern Europe.

III. ENGLISH HISTORY. In succession attention is given to the history of England as the great exponent of human liberty, the rise and extension of her institutions, the settlement of her American Colonies, and the growth of her ideas and civilization on American soil.

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## HORTICULTURE.

PROFESSOR HEDRICK.

This subject occupies five hours a week during the second term of the junior year of the long Agricultural Course, and during the same terms of the second year of the short course.

Three hours a week are also devoted to this subject during the first term of the senior year in the Agricultural, Domestic Arts, and General Science Courses.

The work is as follows:

I. PROPAGATION AND PRUNING. The first term is occupied with plant propagation; a discussion of the principles underlying it and of special methods, as seeding, budding and the various methods of grafting. Some time is also devoted to a discussion of the general principles on which the practice of pruning is based. During this term two hours each week are devoted to pruning, grafting, making cuttings, and other work in the propagating house.

II. POMOLOGY. In the second term the subject of Pomology proper is taken up, including the choice of fruit lands, their cultivation and the maintenance of fertility; the planting of orchards and other fruit plantations; choice of trees and selection of varieties; the diseases of plants and the principles and practice of spraying.

III. FLORICULTURE. This is taught during the spring term of the junior year in the Domestic Arts Course. It deals with the propagation and care of house plants, the flower garden and the planting and care of the home grounds. So far as possible the work in the class-room is supplemented by actual practice in the green house and on the college grounds.

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## MATHEMATICS.

PROFESSORS SNOW AND LANGTON.

I. ALGEBRA. A thorough drill in the elements of algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions, is given all freshmen every day during the first term.

II. PLANE GEOMETRY. Oral and written recitations in the elements of plane geometry are required of freshmen half the time during the winter and spring terms.

III. HIGHER ALGEBRA embraces a study of quadratic equations; simple and indeterminate equations, inequalities,



theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems, during the fall term of the sophomore year.

IV. SOLID GEOMETRY involves recitations on the relation of lines and planes in space; area of surfaces; volume of solids: and the solution of practical problems. It comes in the first term sophomore year.

V. TRIGONOMETRY embraces a study of the use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulæ. Second term sophomore year.

VI. SURVEYING occupies eleven weeks, two recitations a week, and four hours field practice a week. The solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying; and the use of the level in establishing grades,—are the most important features of the work.

VII. ANALYTICAL GEOMETRY embraces the reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

VIII. CALCULUS. 1. *Differential*. Development of the fundamental principles and formulæ of the differential calculus; applications to various problems in indeterminate forms, tangents and normals to plane curves, and maxima and minima, etc.

2. *Integral*. Elementary forms of integration, development of formulæ; applications in determining length of curves, areas, center of gravity, moment of inertia, volume of solids, etc. Fall, winter and spring terms.

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## MECHANIC ARTS.

PROFESSOR JENSON.

MR. GRIFFIN.

MR. HANSEN.

### I. TECHNICAL INSTRUCTION.

Instruction is given during the regular shop hours on the various operations throughout the course, and includes the pre-

paration of steel and iron for the mechanic arts; the felling and seasoning of timber; selection of materials, etc.

## II. *SHOP PRACTICE.*

1. **BENCH WORK IN WOOD** includes exercises in planing, sawing, chiseling, rabbeting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and the general use of carpenters' tools.

2. **WOOD TURNING** covers all the principles of straight turning, face plate, and chuck work.

3. **IRON FORGING** embraces drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flatters, fullers, swages, etc. These principles are applied in the making of tools for use in the shop. Other articles are made, such as andirons and ornamental gates, if time permits.

4. **STEEL FORGING** embraces the forging and tempering of punches, cold chisels, drills, lathe and planer tools, springs, and the welding of steel to iron; annealing, case hardening, and coloring are also taught.

5. **CABINET MAKING** is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood carving added.

6. **PATTERN MAKING** embraces a number of exercises in the construction of simple and built up patterns and core boxes.

7. **WISE WORK**, in iron, embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of key seats, riveting, brazing and soldering.

8. **MACHINE WORK** embraces straight, taper and eccentric turning, thread cutting, face plate, and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail, and T grooves, and key seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.

## METEOROLOGY.

ASSISTANT PROFESSOR DRYDEN.

This is an optional course for junior and senior students, and includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather Service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

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## MILITARY SCIENCE AND TACTICS.

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This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two 3-inch rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and students are required to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, the uniform prescribed by the College must be worn.

I. INFANTRY. This includes all the movements described in the drill regulations of the U. S. Army, from gymnastic instruction in the setting-up exercises, the school of the soldier, and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition; instruction in signaling with flag, and in military telegraphy.

II. ARTILLERY. This embraces drill in the manual of the piece, and target practice when practicable.

III. THEORETICAL INSTRUCTION. During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military science. Daily from 11:30 a. m. to 12:30 p. m. Required of all students except juniors and seniors.

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## VOCAL MUSIC.

MR. LEWIS.

Arrangements will be made for regular choir practice, and the organization and drill of choruses or glee clubs.

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## PHILOSOPHY.

PSYCHOLOGY is a study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized, and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

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## PHYSICAL CULTURE.

The chief aim in this department is not so much to develop muscle as to relieve the mental strain. Special attention, however, is given to any desiring a course for development or to overcome physical defects.

The exercises consist of military, fancy and calisthenic marching; Swedish and free gymnastics; light and heavy work with apparatus: Indian clubs, dumb-bells, wands, pulley weights, rings, parallel and horizontal bars, ladder, ropes, horse, etc.

## PHYSICS.

PROFESSORS JENSON AND SNOW.

I. **ELEMENTARY PHYSICS.** This is an introductory science course, in which the important laws of natural philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems, bearing on the subject in hand, solved in and out of the class room.

II. **HEAT AND ELECTRICITY.** This course has been introduced especially for engineering students. The law of conservation of energy is made the fundamental principle, and the relations and effects of the various qualities are explained upon this basis. The mechanical equivalent of these forms of energy and the processes of transformation from one form to another, and problems involving this principle are made prominent features.

III. **ELEMENTARY MECHANICS.** This involves an elementary consideration of the composition and resolution of forces, the measurement of forces, dynamics, hydrostatics, and pneumatics, supplemented with numerous problems selected from probable occurrences in the construction of buildings and machinery.

IV. **PHYSICAL LABORATORY** work includes measurements in heat and electricity.

V. **ADVANCED PHYSICS.** Heat, steam engine, steam boilers, electricity, elements of mechanism, and other courses in higher and applied physics, are described under Civil and Mechanical Engineering.

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## POLITICAL SCIENCE.

PROFESSOR TANNER.

I. **CIVIL GOVERNMENT AND CONSTITUTIONAL LAW.** A study is made of the township, county, municipal, state, and



national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The recent interpretation of the national constitution are also considered. Cooley's *Constitutional Law*.

II. POLITICAL ECONOMY. Three recitations a week from Mac Vane's *Political Economy* are supplemented by illustrative statistics, explanations and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the consideration of the economic problems that now engage the highest thought of the country.

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## VETERINARY SCIENCE.

ASSISTANT PROFESSOR MERRILL.

This subject embraces a series of lectures, which are delivered five times a week throughout the second and third terms in both courses in agriculture. No attempt is made to turn out veterinarians in any sense of the word, but simply to give the student of agriculture such an elementary knowledge of veterinary medicine as will enable him to treat some of the commoner and simpler forms of disease, to avoid dangerous exposure of the animals under his care, and to recognize the importance of strict attention to the hygiene of his farm animals. The following is a short synopsis of the work:

I. ANATOMY OF THE HORSE. This subject is studied in the following order in the winter term--Osseous system, muscular system, digestive system, respiratory system, urinary system, vascular system, nervous system, organs of generation.

II. MATERIA MEDICA. During the spring term general pathology, therapeutics and surgery receive attention. During this term also one or more horses are dissected.

III. SPECIAL PATHOLOGY and therapeutics (contagious and infectious disease) and principles of horse shoeing are discussed.

# MANUAL TRAINING DEPARTMENT.

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## I.

### MECHANIC ARTS COURSE.

The College offers a three years course in Mechanic Arts. The object of the course is to afford students adequate training in the use of hand and machine tools, and to fit them for industrial pursuits as proficient carpenters, smiths, machinists or founders. In the assignment of exercises their application to practical construction is constantly borne in mind. Proficient workmen are engaged on the teaching staff, and instruction is given by illustrative processes rather than by verbal explanation. Accuracy and neatness are insisted upon in the making of even the most trivial articles, thus inducing both dexterous manipulation and mental discipline.

The arrangement of the course is such that all students entering it are required to take a considerable amount of wood-working and some forging and machine work. Opportunity is afforded to specialize in any of the four branches after the first year. Considerable attention is given to hand tool work, which in all cases precedes machine tool work. Free hand drawing and mechanical drawing are taught throughout the course and are made prominent features.

Besides the strictly technical work, the course affords two recitation hours a day in the classes of English, history, elementary mathematics, physics, and other general studies.

At the completion of the course the student will be given a certificate according to the rules of the College.

**EQUIPMENT.** The shops are already supplied with the following apparatus and machinery:

*For Woodworking:* Twenty-four carpenters' benches with the usual sets of tools, seven wood turning or pattern maker's

lathes, one jig-saw, one wood-planer, one band saw, one universal saw-table.

*For Iron Work:* Twenty-four power blast forges with anvils and tool accompaniments, seven vise-benches, two 17-inch engine lathes, one speed lathe, one Brainard universal milling machine, one large vertical drill press, one large planer.

*General:* Emery wheels, grinding stones, special tools, etc,

## STUDIES IN MECHANIC ARTS, MANUAL TRAINING COURSE.

### FIRST YEAR.

#### FIRST TERM.

|                        |    |
|------------------------|----|
| Reading . . . . .      | 5  |
| Penmanship . . . . .   | 5  |
| Arithmetic . . . . .   | 5  |
| Drawing . . . . .      | 5  |
| Shops . . . . .        | 20 |
| Preliminary exercises; |    |
| joining.               |    |

#### SECOND TERM.

|                            |    |
|----------------------------|----|
| Reading . . . . .          | 5  |
| Arithmetic . . . . .       | 5  |
| Mech. Drawing . . . . .    | 5  |
| Shops . . . . .            | 20 |
| Putting tools in condi-    |    |
| tion, panels, sashes, etc. |    |

#### THIRD TERM.

|                         |    |
|-------------------------|----|
| Reading . . . . .       | 5  |
| Penmanship . . . . .    | 5  |
| Arithmetic . . . . .    | 5  |
| Mech. Drawing . . . . . | 5  |
| Shops . . . . .         | 20 |
| Dove tailing and cab-   |    |
| inet making.            |    |

### SECOND YEAR.

|                          |    |
|--------------------------|----|
| Geography . . . . .      | 5  |
| Arithmetic . . . . .     | 5  |
| Grammar . . . . .        | 5  |
| Mech. Drawing . . . . .  | 5  |
| Shops . . . . .          | 20 |
| (1) General forging,     |    |
| iron welding; iron tools |    |
| or                       |    |
| (2) Wood turning,        |    |
| scroll sawing, etc.      |    |

|                         |    |
|-------------------------|----|
| U. S. History . . . . . | 5  |
| Arithmetic . . . . .    | 5  |
| Grammar . . . . .       | 5  |
| Shops . . . . .         | 20 |
| (1) Iron and steel      |    |
| welding; steel tools    |    |
| or                      |    |
| (2) Pattern making.     |    |

|                         |    |
|-------------------------|----|
| U. S. History . . . . . | 5  |
| Algebra . . . . .       | 5  |
| Grammar . . . . .       | 5  |
| Mech. Drawing . . . . . | 5  |
| Shops . . . . .         | 20 |
| (1) Vise work           |    |
| or                      |    |
| (2) Frame house build-  |    |
| ing.                    |    |

### THIRD YEAR.

|                            |    |
|----------------------------|----|
| Grammar and composi-       |    |
| tion . . . . .             | 5  |
| Algebra . . . . .          | 5  |
| Reading and Elocution      | 5  |
| Mech. Drawing . . . . .    | 5  |
| 1. Machine Shops . . . . . | 20 |
| or                         |    |
| 2. Inside work of          |    |
| house . . . . .            | 20 |
| or                         |    |
| 3. Horse Shoeing,          |    |
| *Foundry . . . . .         | 20 |

|                             |    |
|-----------------------------|----|
| Grammar and composi-        |    |
| tion . . . . .              | 5  |
| Algebra and Geometry        | 5  |
| Physics . . . . .           | 5  |
| Shop work . . . . .         | 20 |
| 1. Machine Shops . . . . .  | 20 |
| or                          |    |
| 2. Stair Building . . . . . | 20 |
| or                          |    |
| 3. *Brazing, Electric       |    |
| Welding, Special            |    |
| Mouldings . . . . .         | 20 |

|                         |    |
|-------------------------|----|
| Grammar and composi-    |    |
| tion . . . . .          | 5  |
| Geometry . . . . .      | 5  |
| Physics . . . . .       | 3  |
| Physics Lab. . . . .    | 4  |
| Shop work . . . . .     | 20 |
| 1. Construction and De- |    |
| sign.                   |    |

Each student in this term will make some elaborate article of furniture or machinery in the branch in which he has specialized. The work must be original in selection and design, subject to approval of department staff.

\*Not offered this year.

## II.

## DOMESTIC ARTS COURSE.

*HOUSEHOLD ECONOMY.*

1. This course of two years is offered for the benefit of those young women who do not wish to take the studies of the regular college course but desire to devote more time to the subjects of especial interest to women. Such other studies as the student is qualified to pursue may, with the consent of the faculty, be substituted for those offered in this course.

2. **FRUIT WORK** includes canning fruit by various methods, steaming, sealing with wax and cotton batting; various methods of making jelly from green as well as from ripe fruits; methods of covering jelly; making pickles, spices, fruits, ketchups and meat relishes; making preserves, jams and candied fruits; preparing fruit juices, cordials and syrups.

3. **MEATS, SOUPS, ETC.** In this the student receives instruction in selecting different cuts of meats and in the methods of cooking best adapted to them. Practice is given in roasting, braizing, broiling, in stews and pot roasts; in preparing fowls for cooking, and in making dressings; in boning, larding and skewering, in making croquets, scallops, etc.

Instruction is given in preparing soup stocks, in making cream soups, vegetable soups and purees.

Students are taught to prepare sauces suited to different kinds of meats and to make various meat pies, dumplings for stews and noodles for soups.

4. **YEAST AND BREADMAKING** includes the making of various kinds of yeast, salt rising, wet and dry yeast; white and graham bread, corn bread, Boston brown bread; many varieties of rolls and buns.

This work includes instruction in making baking powder and in making a great variety of the breakfast breads in which it is used; biscuits, muffins, gems, Johnny cake, pancakes and waffles.

5. **PASTRY COOKING** includes practice in a variety of layer and loaf cakes, sponges, cream puffs, cookies, jumbles and fancy cakes, plain pastry, puff paste, tarts, patties, etc. The student is also given practice in a great variety of baked, boiled and steamed puddings; custards, blancmanges, whips, creams, jellies, etc. Instruction is given in laying tables for dinner and lunch parties, and in waiting on tables. A few lessons are given in making taffy and sugar candies with French cream fondant. Instruction is given in cooking vegetables and serving dinners during both winter terms.

6. **DAIRYING.** This subject will be treated mainly from the home dairy standpoint, though opportunity will be given for more extended practice to any who desire it. The aim will be to dwell particularly upon the practical phase of the subject, both in the lectures and in the work in the dairy rooms. A careful study will be made of milk, its production and composition, and the care that must necessarily be bestowed upon it as an article of food, or if it is to be manufactured into butter or cheese.

Students will have ample opportunity to get an understanding of the art of butter-making. Milk will be creamed by different methods and the product will be under the care of the students till it is made up ready for market.

In cheese-making an understanding will be given of the best factory methods, but more attention will be bestowed upon the manufacturing of small cheese, such as could be made up in a few hours at the home.

## *II. SEWING.*

The object of this course is to qualify for a trade, and to lay a foundation whereby young women may be enabled to maintain themselves.

1. **HAND STITCHES.** The work begins with hand sewing which consists of practice in the various stitches used in muslin and woolen goods; running, hemming, overhanding, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, backstitch, basting, bands, bias cutting,



blanket stitch, slip stitch, herring bone, chain and cross stitch, and feather stitch, French hem, French seam, etc.

2. CARE OF MACHINES AND MACHINE SEWING. Regular practice is given in the care of the machine, and its mechanism is illustrated. Practice is given in running, hemming, tucking, ruffling, puffing, binding, etc.

3. CUTTING AND FITTING. The student learns to draft from measurements patterns of basques, skirts, sleeves, princess gowns, French coats, capes, circulars, etc.

4. PLAIN DRESSMAKING. Plain gowns are drafted, cut and basted, fitted, draped, trimmed and entirely finished by the student.

5. DRESSMAKING, DESIGNING AND FINISHING. Instruction is given by talks on grace in design and costume, and harmony of color. Special attention is given to draping, finishing, and the designing of costumes.

6. FANCY WORK. This consists of hemstitching, drawn work, Kensington embroidery, Roman cut work, Spanish laid work, jeweled embroidery, Bulgarian embroidery and modern lace making.

## MANUAL TRAINING IN DOMESTIC ARTS.

### FIRST YEAR.

| FIRST TERM.              | SECOND TERM.              | THIRD TERM.                |
|--------------------------|---------------------------|----------------------------|
| Grammar . . . . . 5      | Grammar . . . . . 5       | Grammar . . . . . 5        |
| Reading . . . . . 5      | U. S. History . . . . . 5 | U. S. History . . . . . 5  |
| Drawing . . . . . 6      | Cooking Lectures . . . 5  | Drawing . . . . . 4        |
| Hand Stitches . . . . 10 | Care of Machines and      | Cutting and Fitting . . 10 |
| Laundrying . . . . . 4   | Machine Sewing . . 10     | Yeast and Bread            |
|                          | Cooking of Meats, Soups,  | Making, Plain Pas-         |
|                          | Sauces and Vegetables 5   | try cooking . . . . . 6    |

### SECOND YEAR.

|                           |                          |                          |
|---------------------------|--------------------------|--------------------------|
| Arithmetic . . . . . 5    | Arithmetic . . . . . 5   | Arithmetic and Algebra 5 |
| Geography . . . . . 5     | Elocution . . . . . 5    | Grammar . . . . . 5      |
| Plain Dress Making . . 10 | Hygiene and House-       | Dairying . . . . . 10    |
| Fruit Work . . . . . 10   | hold Sanitation . . . 5  | Fancy Work . . . . . 10  |
|                           | Designing, Draping       |                          |
|                           | and Finishing . . . . 10 |                          |
|                           | Pastry Cooking, Salads,  |                          |
|                           | Ices, etc. . . . . 5     |                          |

## WINTER COURSE.

I. FARMERS' COURSE. Beginning in January, a course of special lectures on agricultural subjects is given for the benefit of any farmer who may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and occupying one term till the end of March. A special circular describing this course will be mailed upon application.

II. WOMEN'S COURSE. A special course in sewing, household management, cooking, and such literary or studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term. Special circulars describing this course will be issued.

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## EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one-third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amounted to one-fifth or more of the term) shall pass the whole subject on examination. In all four year courses, an average standing of not less than 75 per cent., with no grade less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month may be dropped from the class.

# PREPARATORY DEPARTMENT.

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Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some the schools are quite primitive. As a consequence many young men and women, who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the state, and now feel that they are entitled to a share of the intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are, do not provide instruction generally adapted to the age and wants of the class referred to. It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies:

## SUB-FRESHMAN YEAR.

| FIRST TERM.                         | SECOND TERM.                        | THIRD TERM.                         |
|-------------------------------------|-------------------------------------|-------------------------------------|
| Grammar and Composition . . . . . 5 | Grammar and Composition . . . . . 5 | Grammar and Composition . . . . . 5 |
| Arithmetic . . . . . 5              | Arithmetic . . . . . 5              | Algebra . . . . . 5                 |
| Geography . . . . . 5               | U. S. History . . . . . 5           | U. S. History . . . . . 5           |
| Reading and Elocution. 5            | Reading and Elocution. 5            | Reading and Elocution. 5            |

## *Afternoon Work.*

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| Penmanship . . . . . 5 | Penmanship . . . . . 5 | Penmanship . . . . . 5 |
|------------------------|------------------------|------------------------|

## LIBRARY.

MRS. GOODWIN, Librarian.

The general library contains about five thousand volumes and several thousand pamphlets. The subjects covered are general literature, including poetry and fiction, travel, history, biography and criticism; political economy, sociology, metaphysics, general science, and such of the special sciences as are included in the courses of the several departments. The Professor of English Literature, whose private library contains about two thousand eight hundred volumes, allows to advanced students in his own classes, the privilege of the use of his library under his direction. Some of the other professors also accord access to their private libraries as occasion may require. The library and reading room are open to the students and to the general public every college day throughout the year.

The list of periodicals placed in the reading room upon subscription is as follows:

### *LITERARY MAGAZINES.*

|                       |                            |
|-----------------------|----------------------------|
| Atlantic Monthly.     | Ladies' Home Journal.      |
| Book News.            | Literature.                |
| Century.              | Literary Digest.           |
| Contemporary Review.  | Literary News.             |
| Cosmopolitan.         | Literary World.            |
| Critic.               | McClure's Magazine.        |
| Dial.                 | Munsey's Magazine.         |
| Eclectic Magazine.    | Nation.                    |
| Edinburgh Review.     | Nineteenth Century.        |
| Education.            | North American Review.     |
| Educational Review.   | Outlook.                   |
| Fortnightly Review.   | Review of Reviews, Am. Ed. |
| Forum.                | Scribner's Magazine.       |
| Gentlewoman.          | Student's Journal.         |
| Harper's Bazar.       | University Chronicle.      |
| Harper's Monthly.     | Westminster Review.        |
| Harper's Weekly.      | Youth's Companion.         |
| Journal of Education. |                            |

*SCIENTIFIC AND TECHNICAL MAGAZINES.*

|                                                  |                                                             |
|--------------------------------------------------|-------------------------------------------------------------|
| American Florist.                                | Library Magazine.                                           |
| American Machinist.                              | Machinery.                                                  |
| American Magazine of Civics.                     | Modern Art.                                                 |
| American Historical Review.                      | Music.                                                      |
| American Journal of Politics.                    | Nature.                                                     |
| American Naturalist.                             | Penman's Journal.                                           |
| American Veterinary Review.                      | Political Science Quarterly.                                |
| Architectural Record.                            | Popular Science Monthly.                                    |
| Art Education.                                   | Public Libraries.                                           |
| Art Journal.                                     | Quarterly Journal of Economics.                             |
| Botanical Gazette.                               | Sanitarian.                                                 |
| Delineator.                                      | School Review.                                              |
| Dietetic Magazine.                               | Science.                                                    |
| Electrician.                                     | Scientific American—Building Edition.                       |
| Engineering Magazine.                            | Scientific American — Supplement.                           |
| Etude.                                           | Studies in Historical and Political Science.                |
| Good Housekeeping.                               | Table Talk.                                                 |
| Home Art.                                        | Torrey Botanical Club.                                      |
| House, The Beautiful.                            | Transactions of American Society of Mechanical Engineering. |
| Johns-Hopkins University Studies.                | Werner's Voice Magazine.                                    |
| Journal of American Folk Lore.                   |                                                             |
| Journal of Association of Engineering Societies. |                                                             |
| Journal of Veterinary Archives.                  |                                                             |
| Le Bon Temps.                                    |                                                             |

*AGRICULTURAL MAGAZINES.*

|                       |                          |
|-----------------------|--------------------------|
| Agricultural Science. | Farm Poultry.            |
| American Bee Journal. | Forester.                |
| American Gardening.   | Journal of Horticulture. |
| Breeder's Gazette.    | Pacific Rural Press.     |
| Country Gentleman.    | Poultry World.           |
| Farmer's Magazine.    |                          |



## *NEWSPAPERS AND MISCELLANEOUS PERIODICALS.*

The following is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to college students and to the general public. The list comprises nearly all the best agricultural papers of the country, and in connection with the college list of periodicals, constitutes an excellent current library of agriculture and related sciences.

|                                                         |                                         |
|---------------------------------------------------------|-----------------------------------------|
| Agricultural Epitomist.                                 | Creamery Journal.                       |
| Agriculturist.                                          | Cultivator.                             |
| American Agriculturist, Middle<br>and Western editions. | Daily Public Ledger, Philadel-<br>phia. |
| American Creamery.                                      | Dairy, The, London, England.            |
| American Cultivator                                     | Dairy World.                            |
| American Fertilizer.                                    | Dakota Farmer.                          |
| American Gardening.                                     | Elgin Dairy Report.                     |
| American Grange Bulletin.                               | Farmers' Advocate.                      |
| American Horticultural Review.                          | Farm, Field and Fireside.               |
| American Horticulturist.                                | Farm and Fireside.                      |
| American Poultry Journal.                               | Farmers' Guide.                         |
| American Sheep Breeder and<br>Wool Grower.              | Farm and Home.                          |
| American Swineherd.                                     | Farmer's Home.                          |
| Baltimore Weekly Sun.                                   | Farmer's Journal.                       |
| California Cultivator and<br>Poultry Keeper.            | Farmer's Call.                          |
| California Fruit Grower.                                | Farmer's Magazine.                      |
| Chronique Agricole, Lausanne,<br>Switzerland.           | Farming, Toronto, Ontario,<br>Canada.   |
| Clover Leaf.                                            | Farm News.                              |
| Colman's Rural World.                                   | Farm and Orchard.                       |
| Commercial Agriculture.                                 | Farmers' Review.                        |
| Connecticut Farmer.                                     | Farm, Stock and Home.                   |
|                                                         | Field and Farm.                         |
|                                                         | Gardening.                              |

|                                                              |                                |
|--------------------------------------------------------------|--------------------------------|
| Grange Visitor.                                              | Pacific Coast Dairyman.        |
| Hoard's Dairyman.                                            | Pacific Rural Press.           |
| Holstein Friesian Register.                                  | Practical Farmer.              |
| Hospodar.                                                    | Prairie Farmer.                |
| Illustrated London News.                                     | Reliable Poultry Journal.      |
| Indiana Farmer.                                              | Revue Internationale des       |
| Industrial American.                                         | Falsifications, Amsterdam,     |
| Industrialist.                                               | Holland.                       |
| Irrigation Age.                                              | Rural Canadian, Toronto, On-   |
| Journal of Board of Agriculture, London, England.            | tario, Canada.                 |
| Journal of Agriculture.                                      | Rural Life.                    |
| Jersey Bulletin.                                             | Rural Northwest.               |
| Kansas Farmer.                                               | Scottish Farmer, Glasgow,      |
| Live Stock Indicator.                                        | Scotland.                      |
| Live Stock Report.                                           | Southern Cultivator.           |
| L'Industrie Laitiere, Paris, France.                         | Stockman and Farmer.           |
| Louisiana Planter.                                           | Successful Farmer.             |
| Milch Zeitung, Bremen, Germany.                              | Sugar Beet.                    |
| Mirror and Farmer.                                           | Texas Farm and Ranch.          |
| Montana Fruit Grower.                                        | Ulster Agriculturist, Belfast, |
| Nebraska Farmer.                                             | Ireland.                       |
| Neue Zeitschrift fur Rubenzucker Industrie, Berlin, Germany. | Wallace's Farmer.              |
| New England Farmer.                                          | Weekly Call, San Francisco.    |
| New England Florist.                                         | Weekly Tribune, New York.      |
| Ohio Farmer.                                                 | Western Agriculturist and Live |
| Orange Judd Farmer.                                          | Stock Journal.                 |
|                                                              | Western Rural.                 |
|                                                              | Wisconsin Agriculturist.       |
|                                                              | Wool, Mutton and Pork.         |
|                                                              | World, thrice a week.          |

The following Utah newspapers are also sent by the courtesy of the publishers.

|                         |                             |
|-------------------------|-----------------------------|
| Advocate, Price.        | Banner, Lehi.               |
| Advocate, Richfield.    | Beobachter, Salt Lake City. |
| American, Spanish Fork. | Blade, Deseret.             |

|                                          |                             |
|------------------------------------------|-----------------------------|
| Box Elder News, Brigham.                 | Nation, Logan.              |
| Bugler, Brigham.                         | News, Beaver.               |
| Bulletin, Brigham.                       | Press, Ogden.               |
| Clipper, Bountiful.                      | Progress, Fillmore.         |
| Democrat, Eureka.                        | Pyramid, Mount Pleasant.    |
| Deseret News, Salt Lake City.            | Record, Cedar City.         |
| Enterprise, Ephraim.                     | Record, Park City.          |
| Enquirer, Provo.                         | Republic, Nephi.            |
| Express, Vernal.                         | Review, Ogden.              |
| Globe, Payson.                           | Round-up, Randolph.         |
| Herald, Salt Lake City.                  | Sentinel, Manti.            |
| Improvement Era.                         | Southern Censor, Richfield. |
| Independent, Sandy.                      | Standard, Ogden.            |
| Independent, Springville.                | Times, Coalville.           |
| Inter-Mountain Advocate, Salt Lake City. | Transcript, Tooele.         |
| Item, American Fork.                     | Tribune, Salt Lake City.    |
| Journal, Logan.                          | Utah Patriot, Park City.    |
| Mercury, Mercur.                         | Utonian, Provo.             |
| Messenger, Manti.                        | Wasatch Wave, Heber.        |
| Miner, Tintic.                           | Woman's Exponent.           |
|                                          | Young Woman's Journal.      |

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## MUSEUM.

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\_\_\_\_\_, Curator.

The Museum contains a considerable number of specimens illustrative of Geology and Palæontology, Vetebrate and Invertebrate Zoology, Mineralogy; also about four thousand, five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grains representing the produce of Utah and other States. A small collection of Indian and Polynesian products and curiosities has been made.

*Donations to the Museum will be highly Appreciated.*

The following contributions have been made to the Museum and are hereby thankfully acknowledged:

- Mr. J. W. Dunn, Frisco, Utah.—Cerargyrite and gypsum from Horn Silver Mine, Frisco, Utah.
- Prof. E. S. Richman, Fullerton, California.—Petrified wood, Obsidian toration, Castle Geyser formations, Fountain Geyser formations, Hot Springs formations; all from Yellowstone Park.
- Mr. T. C. Craigan, Logan.—Petrified wood.
- Mr. Lewis Carver, Plain City.—Asbestos and petrified wood.
- Mr. F. M. Staker, Rockport, Utah.—Mineralogical specimens.
- Mr. T. R. Welsh, Croydon, Utah.—Ammonites from Somersetshire, England.
- Mr. A. G. Watson.—Crystalized lead from Keynote Mine, Bingham Canyon.
- Mr. Charles Blythe, Salt Lake City.—Ute Indian spear heads and peace pipe from Uintah Reservation.
- Mr. A. L. Green, Menan, Idaho.—Collection of shells, coral, seaweeds, curios, cloth and mats woven by the natives. All from the Samoan islands.
- Mr. S. P. Morgan, Logan.—Specimen plant of peanuts grown in southern Idaho, near Franklin.
- Mr. Theodore Martineau, Colonia Juarez, Mexico.—Collection of ancient pottery from Mexico.
- Prof. J. T. Miller, Nephi, Utah.—Collection of coins of various nations.
- Mr. Alma Green, Menan, Idaho.—Shells, coral moss, and photographs from Samoan Islands.
- Mr. J. R. Thompson, Richmond.—Lime incrustations, Soda Springs, Idaho.
- Mr. Samuel Littledale, Smithfield.—Curio.
- Mr. Henry Bassett, Salt Lake City.—Indian arrow head.
- Mr. Christian Fonnbeck, Newton District.—An anatomical monstrosity.
- Mr. H. C. Hansen, Logan.—Specimens of curly ash and curly maple from Virginia.

## WEATHER FORECASTS.

The College receives the telegraphic weather forecasts on the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are displayed from the flagstaff of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the percentage of verifications of the forecasts of the Pacific coast division was 83.7. For Utah, which is part of this division, the percentage was likewise 83.7. Great value is placed upon these forecasts by the Department of Agriculture at Washington. From their timely warnings much property is saved both on sea and land. The Department considers that \$10,000,000 is a conservative estimate of the value of property saved in 1895. Doubtless some means will be devised in the near future whereby these forecasts will be made more accessible to the farming community. An explanation of the flag signals is shown on the third page of the cover.

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## BOARDING HOUSE.

The Boarding House will be used for lady students exclusively, and will be under the discipline of the College. Students will be responsible to the president for their conduct, and will not be allowed out evenings without the consent of the matron, who will make a monthly report to the president of each lady's conduct and absences in the evening after regulation hours.

Two students usually occupy one room, the cost to each for room, electric light, and board being from \$2.25 to \$2.50 a week. Students at the above prices furnish bedding and carpet. Furnished rooms may be had for \$2.75 a week.



# CATALOGUE OF STUDENTS.

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## POST GRADUATES.

Beers, Anna . . . . . Logan.  
Jenson, Charles A. . . . . Hyrum.  
Maughan, Rachel Ann . . . . . Petersboro.

## SENIORS.

Baker, John Simon . . . . . Mendon.  
Beers, William Duke . . . . . Logan.  
Bullen, Ethel . . . . . Richmond.  
Gordon, Robert John . . . . . Logan.  
Hogensen, Christian . . . . . Newton.  
Merrill, Frederick Whittemore . . . . . Richmond.  
Peterson, Joseph Hogan . . . . . Huntsville.  
Peterson, William . . . . . Bloomington, Idaho.  
Simmonds, William Walter . . . . . Trenton.  
Stover, Arthur Patterson . . . . . Logan.

## JUNIORS.

Flemming, Burton Percival . . . . . Logan.  
Hansen, Niels M., Jr . . . . . Logan.  
Homer, Rose . . . . . Oxford, Idaho.  
Homer, William Harrison, Jr . . . . . Oxford, Idaho.  
Jensen, Joseph William . . . . . Newton.  
Maughan, Elizabeth Collins . . . . . Petersboro.  
Nelson, Ethel Elfreada . . . . . Manti.  
Taylor, Geo. Francis . . . . . Plain City.

## SOPHOMORES.

Bithell, Joseph James . . . . . Salt Lake City.  
Borlase, John Albert . . . . . Bingham Junction.  
Brown, Charles Franklin . . . . . Loa.

|                                        |                      |
|----------------------------------------|----------------------|
| Bullen, Blanche . . . . .              | Richmond.            |
| Christiansen, Mary Ida . . . . .       | Hyrum.               |
| Crane, Bert . . . . .                  | Soda Springs, Idaho. |
| Crawford, Stanley . . . . .            | Manti, Utah.         |
| Eliason, Pheir William . . . . .       | Moroni.              |
| Evans, Esther Catherine . . . . .      | Malad, Idaho.        |
| Everton, Walter Marion . . . . .       | Logan.               |
| Foster, Elizabeth Curtis . . . . .     | Logan.               |
| Hillman, William Henry . . . . .       | Oxford, Idaho.       |
| Howell, William Maughan . . . . .      | Wellsville.          |
| Jordan, David Henry . . . . .          | Mt. Pleasant.        |
| Larson, David . . . . .                | Collinston.          |
| McDonald, Mary Elizabeth . . . . .     | Salmon, Idaho.       |
| Miner, Idalah . . . . .                | Logan.               |
| Perry, Almeda . . . . .                | Vernal.              |
| Pugmire, Charles Colson Rich . . . . . | St. Charles, Idaho.  |
| Pulley, Edward Parley . . . . .        | American Fork.       |
| Redford, Hyrum Brown . . . . .         | Spencer, Idaho.      |
| Smith, Charles Bailey . . . . .        | Boise, Idaho.        |
| Stewart, Frank . . . . .               | St. Charles, Idaho.  |
| Stover, Mattie Eva . . . . .           | Logan.               |
| Tanner, Arthur Leroy . . . . .         | Logan.               |
| Thatcher, Frank Davis . . . . .        | Logan.               |

#### FRESHMEN.

|                                    |                     |
|------------------------------------|---------------------|
| Adams, Joshua Isaac . . . . .      | Layton.             |
| Barrack, James Edward . . . . .    | Salmon, Idaho.      |
| Bennett, Harry . . . . .           | Blackfoot, Idaho.   |
| Brewer, William Charles . . . . .  | St. Charles, Idaho. |
| Brossard, Clarence Jesse . . . . . | Oxford, Idaho.      |
| Caine, John Thomas . . . . .       | Logan.              |
| Cannon, Preston Jenne . . . . .    | Salt Lake City.     |
| Carlisle, Benjamin . . . . .       | Logan.              |
| Christiansen, Jennie . . . . .     | Hyrum.              |
| Cohn, Max . . . . .                | Oneida, Idaho.      |
| Cole, Horatius . . . . .           | Willard.            |
| Crockett, Hyrum E. . . . .         | Logan.              |

|                                      |                      |
|--------------------------------------|----------------------|
| Crozier, Harry . . . . .             | Martell, Neb.        |
| Culmer, Arthur Basil . . . . .       | Salt Lake City.      |
| Christofferson, Peter Williamson . . | Soda Springs, Idaho. |
| Davis, Edna Alma . . . . .           | Salmon, Idaho.       |
| Dudley, Mamie Eliza . . . . .        | Clifton, Idaho.      |
| Ensign, Adams Wesley . . . . .       | Brigham City.        |
| Forgeon, Mildred Lou . . . . .       | Cokeville, Wyo.      |
| Fowkes, Reuben Wm . . . . .          | Almy, Wyo.           |
| Freckleton, Josephine . . . . .      | Eureka.              |
| Fryar, Reed . . . . .                | Soda Springs.        |
| Goodwin, Margaret . . . . .          | Pocatello, Idaho.    |
| Hansen, Christian James . . . . .    | Collinston.          |
| Hansen, Theresa . . . . .            | Pocatello, Idaho.    |
| Hays, John William, Jr. . . . .      | DuBois, Idaho.       |
| Holmgren, Amanda . . . . .           | Bear River City.     |
| Holmgren, Lydia . . . . .            | Bear River City.     |
| Homer, Ida May . . . . .             | Oxford, Idaho.       |
| Humphreys, Ray Rich . . . . .        | Paris, Idaho.        |
| Irvine, Robert Leo . . . . .         | Logan.               |
| Iverson, Nils Enoch . . . . .        | Bear River City.     |
| Jensen, Olaf Lionel . . . . .        | Bear River City.     |
| Judah, Thomas Nelson . . . . .       | Lancaster, Kansas.   |
| Larsen, Bertie Maria . . . . .       | Mt. Pleasant.        |
| Maughan, Alice Farnes . . . . .      | Peterboro.           |
| McAlister, Maima . . . . .           | Logan.               |
| McNeil, Charles . . . . .            | Logan.               |
| Merrill, Emma . . . . .              | Richmond.            |
| Ormsby, Mabel Jane . . . . .         | Logan.               |
| Parker, Henry Cooper . . . . .       | Wellsville.          |
| Peterson, John Adolph . . . . .      | Logan.               |
| Peterson Joseph Hans . . . . .       | Baker City, Ore.     |
| Peterson, Thyra Louise . . . . .     | Hyrum.               |
| Redford, John . . . . .              | Spencer, Idaho.      |
| Rich, William G. . . . .             | Paris, Idaho.        |
| Rose, Anna Beatrice . . . . .        | Soda Springs, Idaho. |
| Somsen, Olive Emily . . . . .        | Cokeville, Wyo.      |
| Stalker, David . . . . .             | Downey, Idaho.       |
| Stoddard, Leon Buckley . . . . .     | Sumpter, Ore.        |

|                                       |                     |
|---------------------------------------|---------------------|
| Swendsen, John Edward . . . . .       | Blackfoot, Idaho.   |
| Taylor, Apollos Benjamin, Jr. . . . . | Willard.            |
| Thornock, Joseph Emanuel . . . . .    | Bloomington, Idaho. |
| Turner, Edward Hugh . . . . .         | Cove, Idaho.        |
| Turner, Lillian . . . . .             | Cove, Idaho.        |
| Turner, John Henry . . . . .          | Logan.              |
| Twelves, Murray . . . . .             | Provo.              |
| Welker, Roy Anson . . . . .           | Bloomington, Idaho. |
| Williams, Arthur . . . . .            | Peterson.           |

## SPECIAL.

|                                      |                      |
|--------------------------------------|----------------------|
| Briggs, William Amos . . . . .       | Lewisville, Idaho.   |
| Brangham, Irving Lewis . . . . .     | Logan.               |
| Cowley, Ann Belle . . . . .          | Logan.               |
| Cragan, Katie H. . . . .             | Smithfield.          |
| Davis, Emma . . . . .                | Soda Springs, Idaho. |
| Evans, David Morgan . . . . .        | Anaconda, Montana.   |
| Fjeldsted, Estella . . . . .         | Logan.               |
| Greaves, Nellie . . . . .            | Logan.               |
| Groesbeck, Abbie . . . . .           | Logan.               |
| Groesbeck, Marian . . . . .          | Logan.               |
| Groesbeck, Cora . . . . .            | Logan.               |
| Hart, Rosina Emily . . . . .         | Bloomington, Idaho.  |
| Hendrickson, Harold . . . . .        | Levan.               |
| Hendry, David Kerr . . . . .         | Wellsville.          |
| Howard, Mrs. Maria Matilda . . . . . | Salt Lake City.      |
| Hill, Emery J. . . . .               | Idaho Falls, Idaho.  |
| Jenson, Mrs. Irena . . . . .         | Logan.               |
| Jenson, Eliza . . . . .              | St. Charles, Idaho.  |
| Jones, John Joseph . . . . .         | Montpelier, Idaho.   |
| Mellville, Joseph Matthew . . . . .  | Fillmore.            |
| Morgan, Samuel Perry . . . . .       | Franklin, Idaho.     |
| Nelson, William . . . . .            | Newton.              |
| Palmer, Centennial Edward . . . . .  | Plain City.          |
| Pike, Thomas Wm. . . . .             | Logan.               |
| Reese, Amelia . . . . .              | Spanish Fork.        |
| Ricks, Harvey . . . . .              | Logan.               |

|                                    |                      |
|------------------------------------|----------------------|
| Robinson, May . . . . .            | Farmington.          |
| Tanner, Freeman . . . . .          | Provo.               |
| Thatcher, Henry Ritcher . . . . .  | Logan.               |
| Thompson, Edward . . . . .         | Logan.               |
| Thomas, Burton Lewis . . . . .     | Bloomington, Idaho.  |
| Torgeson, Della . . . . .          | Logan.               |
| Wilson, Amy Elizabeth . . . . .    | Logan.               |
| Woodall, Demas Alexander . . . . . | Soda Springs, Idaho. |

# SUB-FRESHMEN.

|                                        |                      |
|----------------------------------------|----------------------|
| Adams, Samuel Joseph . . . . .         | Layton.              |
| Adams, Hugh Robert . . . . .           | Logan.               |
| Anderson Belinda Ulrika . . . . .      | Hyde Park.           |
| Anderson, Ingrid Judith. . . . .       | Hyde Park.           |
| Andrews, Alonzo . . . . .              | Nephi.               |
| Ashton, Maurice . . . . .              | Salmon City, Idaho.  |
| Baker, Lettie . . . . .                | Mendon.              |
| Bennett, Calvin . . . . .              | Lago, Idaho.         |
| Bennett, Nellie . . . . .              | Lago, Idaho.         |
| Bennett, William. . . . .              | Perry, Idaho.        |
| Benson, Joseph . . . . .               | Logan.               |
| Birchell, James Jay . . . . .          | Heber City.          |
| Burns, Joseph . . . . .                | Mt. Pleasant.        |
| Burton, Wm. James . . . . .            | Custer, Idaho.       |
| Briggs, May . . . . .                  | Lewisville, Idaho.   |
| Bybee, Maud . . . . .                  | Lewiston.            |
| Bybee, Harriet Emeline . . . . .       | Lewiston.            |
| Caine, Blanche Elise . . . . .         | Logan.               |
| Call, Wm. Wiley . . . . .              | Castle Dale.         |
| Cannon, Mark Young . . . . .           | Salt Lake City.      |
| Christensen, Nephi . . . . .           | Newton.              |
| Christensen, Arthur Eugene . . . . .   | Newton.              |
| Christensen, Florence . . . . .        | Newton.              |
| Christensen, George Andrew . . . . .   | Newton.              |
| Christofferson, Frederic . . . . .     | Soda Springs, Idaho. |
| Christofferson, James Rasmus . . . . . | Soda Springs, Idaho. |
| Clark, Hazel . . . . .                 | Manti.               |
| Cleveland, John Cornell . . . . .      | St. Charles, Idaho.  |



|                                         |                         |
|-----------------------------------------|-------------------------|
| Costley, James Daniel . . . . .         | Ogden.                  |
| Cordon, Edward Voss . . . . .           | Willard.                |
| Collins, Elizabeth . . . . .            | Lago, Idaho.            |
| Coryell, Eliza Isabel . . . . .         | Cottonwood, Montana.    |
| Comish, Matilda Ann . . . . .           | Coveville.              |
| Crane, Elliott Simon . . . . .          | Soda Springs, Idaho.    |
| Crockwell, Earl Madera . . . . .        | Salt Lake City.         |
| Crockett, Melvin Davis . . . . .        | Oakley, Idaho.          |
| Crockett, George David . . . . .        | Albion, Idaho.          |
| Crosby, Jesse Edward . . . . .          | Springerville, Arizona. |
| Davis, James Ward . . . . .             | Clifton, Idaho.         |
| Davis, Richard Bower . . . . .          | Cherry Creek, Idaho.    |
| Davis, Taylor . . . . .                 | Soda Springs, Idaho.    |
| Davis, Daisy Dean . . . . .             | Soda Springs, Idaho.    |
| Davidson, William Fergus . . . . .      | Greenville.             |
| Deal, Effie Eliza . . . . .             | Springville.            |
| Devine, James . . . . .                 | Morgan.                 |
| Dods, William Bovce . . . . .           | Tooele City.            |
| Dudley, Ada Mary . . . . .              | Willard.                |
| Durrant, Ren . . . . .                  | Spanish Fork.           |
| Dusenberry, Arthur Leroy . . . . .      | Provo.                  |
| Eagor, George Albert . . . . .          | Springerville, Arizona. |
| Eakins, John W . . . . .                | Red Canyon, Wyoming     |
| Egbert, Samuel Roy . . . . .            | Logan.                  |
| Evans, William Morgan . . . . .         | Malad, Idaho.           |
| Facer, Ethel Rose . . . . .             | Logan,                  |
| Fife, Lewis . . . . .                   | Providence.             |
| Fisher, William Frederick, Jr. . . . .  | Oxford, Idaho.          |
| Fjeldsted, Annie . . . . .              | Logan.                  |
| Gipson, George Wesley . . . . .         | Layton.                 |
| Glenn, James Reeder . . . . .           | Wellsville.             |
| Goldsberry, Charlton Alonduce . . . . . | Paradise.               |
| Grace, Mary . . . . .                   | Weston, Idaho.          |
| Grace, Margaret . . . . .               | Weston, Idaho.          |
| Green, Effie Leora . . . . .            | Richmond.               |
| Green, John Maynard . . . . .           | Boise, Idaho.           |
| Greaves, Leroy . . . . .                | Preston, Idaho.         |
| Groesbeck, Susie . . . . .              | Logan.                  |

|                                     |                      |
|-------------------------------------|----------------------|
| Hadley, Alma . . . . .              | Oxford, Idaho.       |
| Hague, Jay Henry . . . . .          | Cannou.              |
| Haight, Jacob Clawson . . . . .     | Farmington.          |
| Hansen, Eugene . . . . .            | Collinston.          |
| Hays, Frederick . . . . .           | Dubois, Idaho.       |
| Harding, Benjamin Dwight . . . . .  | Willard.             |
| Hardy, Robert James . . . . .       | Fielding.            |
| Hess, Edna . . . . .                | Georgetown, Idaho.   |
| Hess, Charles E. . . . .            | Georgetown, Idaho.   |
| Head, Joseph . . . . .              | Preston, Idaho.      |
| Holladay, Ida Florence . . . . .    | Santaquin.           |
| Homer, John Albert . . . . .        | Trenton.             |
| Homer, Roy Fisher . . . . .         | Oxford, Idaho.       |
| Horsley, Harry . . . . .            | Soda Springs, Idaho. |
| Horsley, Willard . . . . .          | Soda Springs, Idaho. |
| Horsley, Alice . . . . .            | Soda Springs, Idaho. |
| Howard, Charles . . . . .           | Rockland, Idaho.     |
| Howell, Joseph Maughan . . . . .    | Wellsville.          |
| Howell, Orrin . . . . .             | Clifton, Idaho.      |
| Hughes, Claudie . . . . .           | Willard.             |
| Hyde, William Jr. . . . .           | Logan, Utah.         |
| Izatt, Catherine Spourd . . . . .   | Logan.               |
| Jacobsen, Julia . . . . .           | Cokeville, Wyoming.  |
| James, Henry Robert . . . . .       | Logan.               |
| Jardine, William Jr . . . . .       | Malad, Idaho.        |
| Jensen, Orson . . . . .             | Bear River City.     |
| Jensen, Bertha Lenore . . . . .     | Newton.              |
| Johnson, Riley . . . . .            | Holden.              |
| Jones, Benjamin Franklin . . . . .  | Willard.             |
| Jones, John Kay . . . . .           | Trenton.             |
| Jones, Parley Parker . . . . .      | Logan.               |
| Kearns, Joseph Albert . . . . .     | Salt Lake City.      |
| King, Andrew Lewis . . . . .        | Logan.               |
| Kirkendall, John Richmond . . . . . | Robinson.            |
| Knight, Harry Charles . . . . .     | Castle Gate.         |
| Kofford, James Arthur . . . . .     | Porterville.         |
| Larsen, Junius . . . . .            | Logan.               |
| Larsen, Andrew N. . . . .           | Logan.               |

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| Ledingham, Albert Edward . . . . .  | Newton.              |
| Lundsteen, Niels . . . . .          | Levan.               |
| Madsen, David Christian . . . . .   | Mt. Pleasant.        |
| Maughan, Josephine Farnes . . . . . | Petersboro.          |
| Mathews, Eugene Denton . . . . .    | Providence.          |
| May, Emma . . . . .                 | Honeyville.          |
| Merrill, Ambrose Pond . . . . .     | Richmond.            |
| Merrill, Preston Reynolds . . . . . | Richmond.            |
| Mifflin, William Phillips . . . . . | Malad, Idaho.        |
| Miles, Nellie . . . . .             | Smithfield.          |
| Miles, Zina Estella . . . . .       | Menan, Idaho.        |
| Montrose, Ray . . . . .             | Logan.               |
| Morgan, Joseph Willard . . . . .    | Willard.             |
| Morgan, Thomas . . . . .            | Thomas' Fork, Idaho. |
| Morgan, Robert Henry . . . . .      | Willard.             |
| Morgan, Pauline . . . . .           | Willard.             |
| Meyers, Henry Dennis . . . . .      | Preston, Idaho.      |
| Munk, Lottie . . . . .              | Logan.               |
| Munk, Sophia . . . . .              | Logan.               |
| Munk, Albert . . . . .              | Logan.               |
| McGregor, James Davis, Jr. . . . .  | Perry, Idaho.        |
| McKee, John . . . . .               | Salt Lake City.      |
| Nebeker, Aquilla Chauncey. . . . .  | Laketown.            |
| Nebeker, Theodore . . . . .         | Salt Lake City.      |
| Nebeker, Elizabeth Ann . . . . .    | Willard.             |
| Neeley, Parley David . . . . .      | Franklin, Idaho.     |
| Newburger, Helena Emma . . . . .    | Logan.               |
| Nyman, Andrew, Jr. . . . .          | Greenville.          |
| Olsen, Lauretta . . . . .           | Brigham.             |
| Olsen, Rupert Peter . . . . .       | Brigham.             |
| Oram, George Harry . . . . .        | Pocatello, Idaho.    |
| Ormsby, Sybil May . . . . .         | Logan.               |
| Owens, Richard Evan . . . . .       | Malad, Idaho.        |
| Pace, Alphonzo . . . . .            | Nephi.               |
| Page, Thomas Independent . . . . .  | Salt Lake City.      |
| Parker, George Gilbert . . . . .    | Hooper.              |
| Parker, William Gilbert . . . . .   | Hooper.              |
| Peterson, Albert . . . . .          | Bear River City.     |

|                                      |                      |
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| Peterson, Parley S . . . . .         | Ephraim.             |
| Porter, Thomas Rich . . . . .        | Porterville.         |
| Preston, Samuel . . . . .            | Benson.              |
| Pyle, Fred Dale . . . . .            | Graham, Wyo.         |
| Reese, Robert . . . . .              | Logan.               |
| Rich, Thomas Grover, Jr . . . . .    | St. Charles, Idaho.  |
| Roberts, Ernest Peter . . . . .      | Logan.               |
| Roberts, David William . . . . .     | Logan.               |
| Roberts, Lou May . . . . .           | Cokeville, Wyo.      |
| Robison, Benjamin . . . . .          | Loa.                 |
| Robison, Alma Luella . . . . .       | Logan.               |
| Rose, John Henry . . . . .           | Morgan.              |
| Rose, Nerva Leal . . . . .           | Soda Springs, Idaho. |
| Santschi, Eugene, Jr. . . . .        | Castle Gate.         |
| Schwaneveldt, Peter Alonzo . . . . . | Preston, Idaho.      |
| Sharp, Jos. Palmer . . . . .         | Vernon.              |
| Simmonds, Etta . . . . .             | Trenton.             |
| Skeen, William Riley . . . . .       | Plain City.          |
| Skelton, Stephen James . . . . .     | Lewiston.            |
| Smith, Bertha . . . . .              | Montpelier, Idaho.   |
| Smith, Catherine Agnes . . . . .     | Montpelier, Idaho.   |
| Smith, Lizzie . . . . .              | Montpelier, Idaho.   |
| Smith, David Asael . . . . .         | Salt Lake City.      |
| Smith, Joseph Franklin . . . . .     | Wardboro, Idaho.     |
| Sorenson, George Oscar . . . . .     | Scipio.              |
| Standing, Maud Eleanor . . . . .     | Collinston.          |
| Standing, John Robert . . . . .      | Collinston.          |
| Stanger, George Oscar . . . . .      | American Fork.       |
| Stark, Leonard Elias . . . . .       | Marysvale.           |
| Starr, Charles Comfort . . . . .     | Richfield.           |
| Stevens, Orson Albert . . . . .      | Holden.              |
| Stevens, Sybil . . . . .             | Montpelier, Idaho.   |
| Stoffers, Larona Henry . . . . .     | Cokeville, Wyo.      |
| Stowell, Dan . . . . .               | Lewiston.            |
| Sullivan, Minnie . . . . .           | Grace, Idaho,        |
| Tarbet, Ether . . . . .              | Riverside,           |
| Tarbet, Joseph Abner . . . . .       | Logan,               |
| Taylor, Ulysses Carl . . . . .       | Willard,             |

|                                        |                     |
|----------------------------------------|---------------------|
| Tebbs, Fielding Burnes . . . . .       | Panguitch,          |
| Thomas, Daniel Preston . . . . .       | Bloomington, Idaho, |
| Thomas, Ephraim, Jr. . . . .           | Malad, Idaho,       |
| Thomas, Nathan A. . . . .              | Logan,              |
| Thomas, Pratt Pace . . . . .           | Spanish Fork,       |
| Thompson, Junius . . . . .             | Bear River City,    |
| Trevethan, Thomas . . . . .            | Salt Lake City,     |
| Vanderwood, Henry . . . . .            | Malad, Idaho,       |
| Wells, Jonathan Sawyer . . . . .       | Woodruff,           |
| Wheeler, Milo Andrus . . . . .         | Lewiston,           |
| Whitworth, John Thomas . . . . .       | Chesterfield,       |
| Williams, James Clyde . . . . .        | Soda Springs,       |
| Williams, Joseph William . . . . .     | Malad, Idaho,       |
| Williams, Manasseh Woodville . . . . . | Soda Springs,       |
| Wilson, Effie Lucinda . . . . .        | Logan,              |
| Wood, Ellis . . . . .                  | Willard,            |
| Wood, Esther Phoebe, Mrs . . . . .     | Willard,            |
| Wood, Richard . . . . .                | Holden,             |
| Wood, William Joseph . . . . .         | Ogden,              |
| Woods, Clarence . . . . .              | Boise, Idaho,       |
| Woodall, James Franklin . . . . .      | Soda Springs,       |
| Woolley, Ernest Rich . . . . .         | Paris, Idaho,       |
| Wright, Charlotte . . . . .            | Whitney, Idaho,     |
| Wright, George William . . . . .       | Franklin, Idaho,    |
| Wright, Joseph Smith, Jr . . . . .     | Whitney, Idaho,     |
| Wright, Lora . . . . .                 | Lago, Idaho,        |
| Wright, Samuel Brown . . . . .         | Franklin, Idaho,    |
| Wright, Verena . . . . .               | Franklin, Idaho.    |

#### DOMESTIC ARTS—MANUAL TRAINING.

##### *Second Year.*

|                           |                    |
|---------------------------|--------------------|
| Larson, Eliza . . . . .   | Collinston,        |
| Nelson Blanche . . . . .  | Fish Haven, Idaho, |
| Paine, Veanetta . . . . . | Georgetown, Idaho. |



## DOMESTIC ARTS—MANUAL TRAINING.

*First Year.*

|                                  |                     |
|----------------------------------|---------------------|
| Adams, Melinda Ann . . . . .     | Layton,             |
| Adams, Lilly May . . . . .       | Layton,             |
| Aland, Mary Amelia . . . . .     | Bloomington, Idaho, |
| Anderson, Annie Esther . . . . . | Logan,              |
| Blythe, Florence . . . . .       | Salt Lake City,     |
| Blythe, Lulu . . . . .           | Salt Lake City,     |
| Brown, Mary Isabel . . . . .     | Lanark, Idaho,      |
| Dalton, Isabel . . . . .         | Willard,            |
| Gipson, Elizabeth Jane . . . . . | Layton,             |
| Hughes, Maggie . . . . .         | Samaria, Idaho,     |
| Lindquist, Jennie . . . . .      | Logan,              |
| Mattson, Emma Eleada . . . . .   | St. Charles, Idaho, |
| Nebeker, Effie . . . . .         | Logan,              |
| Nelson, Clara Jane . . . . .     | Fish Haven,         |
| Paull, Gertrude . . . . .        | Logan,              |
| Paull, Lillie Maud . . . . .     | Logan,              |
| Rockhill, Isabel . . . . .       | Spanish Fork,       |
| Zundel, Maria . . . . .          | Willard,            |

## DOMESTIC ARTS—SPECIAL WINTER COURSE.

|                                      |               |
|--------------------------------------|---------------|
| Christensen, Elnora Blythe . . . . . | Newton,       |
| Comish, Hattie . . . . .             | Coveville,    |
| Hansen, Pauline Mrs . . . . .        | Logan,        |
| Hansen, Mary . . . . .               | Newton,       |
| Hill, Georgia . . . . .              | Mt. Sterling, |
| Hugi, Emma . . . . .                 | Logan,        |
| Hyde, Rose . . . . .                 | Logan,        |
| Larson, Caroline Bertie . . . . .    | Newton,       |
| Larson, Annie Helen, Mrs . . . . .   | Newton,       |
| Moffat, Connie . . . . .             | Logan,        |
| Sorenson, Mary Ann . . . . .         | Newton,       |
| Sorenson, Rose . . . . .             | Logan,        |
| Taylor, Agnes . . . . .              | Logan,        |
| Webber, Emma . . . . .               | Logan,        |

## MECHANIC ARTS—MANUAL TRAINING

*Second Year.*

|                                    |                      |
|------------------------------------|----------------------|
| Allred, Samuel Willis . . . . .    | Spring City,         |
| Allred, Myron . . . . .            | Spring City,         |
| Anderson, Albert William . . . . . | Meadow,              |
| Arnett, William Joshua . . . . .   | Boise Valley, Idaho, |
| Brown, Joel . . . . .              | Loa,                 |
| Grundy, Marion . . . . .           | Loa,                 |
| Hansen, James Peter, Jr. . . . .   | Spring City,         |
| Lewis, Robert Thomas . . . . .     | Logan,               |
| Linford, James Wesley . . . . .    | St. Charles, Idaho,  |
| McCulloch, Oliver . . . . .        | Logan,               |
| Olson, Aaron Brigham . . . . .     | Logan,               |
| Weeks, Wm. Henry . . . . .         | * Lima, Idaho,       |

## MECHANIC ARTS—MANUAL TRAINING.

*First Year.*

|                                   |                        |
|-----------------------------------|------------------------|
| Affleck, Adam Alonzo, . . . . .   | Logan,                 |
| Aland, John Albert . . . . .      | Bloomington, Idaho,    |
| Alston, James Leroy . . . . .     | Salt Lake City,        |
| Anderson, James . . . . .         | Fountain Green,        |
| Atkinson, James Alvin . . . . .   | Dayton, Idaho,         |
| Balfour, Edward . . . . .         | Chesterfield, Idaho.   |
| Berry, Edward Lawrence . . . . .  | Park City.             |
| Bigelow, Milton Eugene . . . . .  | Springerville Arizona, |
| Blythe, John Alexander . . . . .  | Salt Lake City,        |
| Boden, Willard, Jr. . . . .       | Dayton, Idaho,         |
| Brooks, Harry Ray . . . . .       | Boise, Idaho,          |
| Brough, William George . . . . .  | Porterville,           |
| Bybee, Amasa Marion . . . . .     | Lewiston,              |
| Collins, Harry Ferguson . . . . . | Lago, Idaho.           |
| Collins, Arthur . . . . .         | Gentile Valley, Idaho, |
| Cook, Henry . . . . .             | South Weber,           |
| Cook, George . . . . .            | South Weber,           |
| Crismon, Leo . . . . .            | Salt Lake City,        |

|                                         |                        |
|-----------------------------------------|------------------------|
| Crookston, Robert . . . . .             | Logan,                 |
| Dickson, Abel Josiah . . . . .          | Morgan,                |
| Eckland, Fritz . . . . .                | Newton,                |
| Eckland, Earnest . . . . .              | Newton,                |
| Evans, Richard Lavedall . . . . .       | Logan.                 |
| Flack, James Milton . . . . .           | Franklin, Idaho.       |
| Florence, George Walter . . . . .       | Porterville.           |
| Ford, Albert Delroy . . . . .           | Centerville.           |
| Fryar, Allan Porter . . . . .           | Soda Springs, Idaho.   |
| Grundy, William Jefferson . . . . .     | Loa.                   |
| Gull, Albert Edward . . . . .           | Meadow.                |
| Haguewood, Walter Marshall . . . . .    | Salt Lake City.        |
| Haight, George Hector . . . . .         | Farmington.            |
| Halvorsen, Christian Henry Jr . . . . . | Castle Gate.           |
| Harding, Thomas Charles . . . . .       | Morgan.                |
| Hart, William Augustus . . . . .        | Thomas's Fork, Idaho.  |
| Hodgman, Bruce William . . . . .        | Hailey, Idaho.         |
| Hodgman, Walter . . . . .               | Hailey, Idaho.         |
| Howell, Elmer Vernon . . . . .          | Clifton, Idaho.        |
| Hughes, Gomer Jr . . . . .              | Samaria, Idaho.        |
| Hughes, Lewis Jr . . . . .              | Samaria, Idaho.        |
| Jennings, Don Walter . . . . .          | Levan.                 |
| Johnson, Jacob Charles Jr . . . . .     | Logan.                 |
| Jones, Charles . . . . .                | Dayton.                |
| Kelly, Hugh Russell . . . . .           | Wallsburg.             |
| Larsen, Christian . . . . .             | Logan.                 |
| Larsen, Rasmus C . . . . .              | Ephraim.               |
| Leslie, John Erastus . . . . .          | Fountain Green.        |
| Loveland, George Elmer . . . . .        | Beaver Dam.            |
| Lunt, John Edgar . . . . .              | Nephi.                 |
| McMaster, William Authel . . . . .      | Salt Lake City.        |
| McCarty, Edgar Cook . . . . .           | Monroe.                |
| Medford, John Freeman . . . . .         | Gentile Valley, Idaho. |
| Olsen, Swan . . . . .                   | Logan.                 |
| Pearson, Erick . . . . .                | Meadow.                |
| Pettingill, Ulysses . . . . .           | Willard.               |
| Rich, George Raymond . . . . .          | Richville.             |
| Schow, Ira Michael . . . . .            | Paradise.              |
| Schow, William . . . . .                | Mantua.                |

|                                        |                    |
|----------------------------------------|--------------------|
| Severson, Levi . . . . .               | Brinton.           |
| Sharp, James Palmer . . . . .          | Vernon.            |
| Sidwell, Laiayette . . . . .           | Manti.             |
| Snell, Cyrus Phillip . . . . .         | Spanish Fork.      |
| Sonne, Ola . . . . .                   | Logan.             |
| Stevens, Walter William . . . . .      | Montpelier, Idaho. |
| Smith, Eugene . . . . .                | Logan.             |
| Swenson, Hyrum . . . . .               | Lago, Idaho.       |
| Tarbet, Loyal . . . . .                | Logan.             |
| Tarbet, Thomas . . . . .               | Benson.            |
| Tarbet, Willard Davis . . . . .        | Logan.             |
| Waldron, Levi . . . . .                | Richville.         |
| Wangsgard, J. H . . . . .              | Huntsville.        |
| Webster, Francis Jr. . . . .           | Cedar City.        |
| Williams, Joseph Wm . . . . .          | Malad, Idaho.      |
| Winters, Clarence Alonzo . . . . .     | Mt. Pleasant.      |
| Wittich, Charles Ernest . . . . .      | Mercur.            |
| Wood, Franklin . . . . .               | Willard.           |
| Woodland, John Henry . . . . .         | Oneida, Idaho.     |
| Woodward, Garnet . . . . .             | Franklin.          |
| Woodward, Cecil . . . . .              | Franklin, Idaho.   |
| Worthington, Stephen Hampton . . . . . | Grantsville,       |
| Wright, Wallace Bruce . . . . .        | Franklin, Idaho,   |
| Zundell, Joseph Michael . . . . .      | Willard.           |

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